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# VIRGINIA MEDICAL MONTHLY

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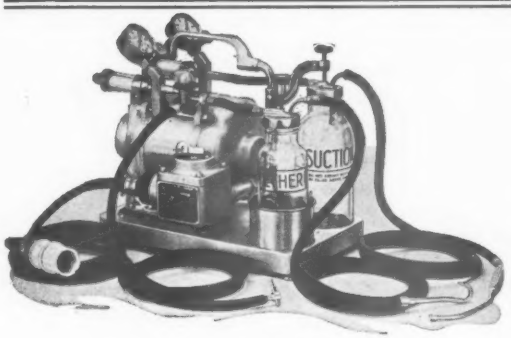

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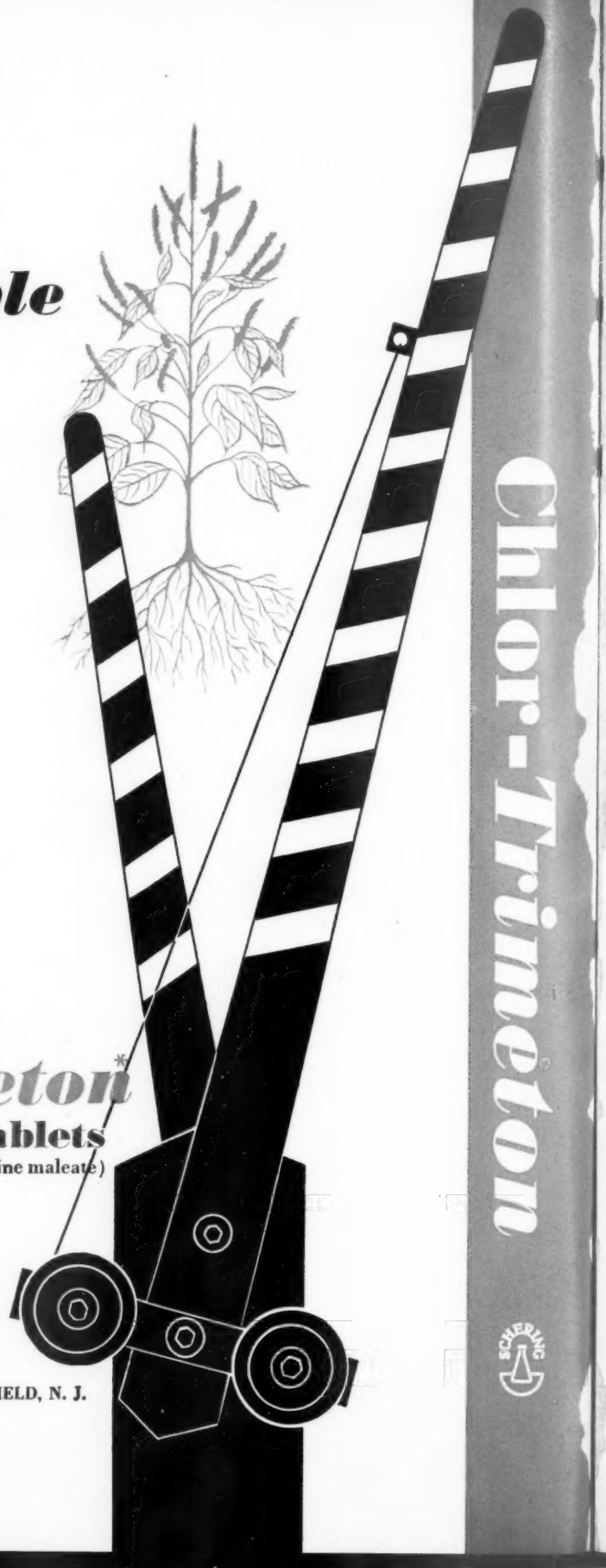


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## GUEST EDITORIAL

### ACTH and Cortisone

THE pituitary adrenocortical system has received widespread attention during the past two years, following the report from the Mayo Clinic that ACTH (pituitary adrenocorticotropic) and cortisone are powerful hormonal substances for the treatment of certain disease states. Already numerous clinical reports have indicated that these substances are capable of inducing a number of metabolic, hormonal, psychological and other effects, some of which are favorable, others unimportant, while others are distinctly dangerous to the patient.

Although the exact mechanism of action of these hormones is unknown, we may for practical purposes assume that the cortical hormone plays a general supportive, rather than an initiating role in bodily processes. Its actions are determined largely by the functional status of the cells themselves, as illustrated by the cortical hormone's ability to promote water retention or diuresis, sodium conservation or excretion, inhibition or accentuation of glycogen utilization, and anabolism or catabolism. This behavior of the adrenal cortex is governed in part by other members of the system, in that the adrenal gland is stimulated to greater activity by the secretions of the pituitary (ACTH) and in turn the adrenal influences the pituitary by the blood level of cortical hormone (cortisone or cortisone-like substances) which it releases into the circulation. Thus, the titre of cortical hormone in body fluids appears to play a major role in this entire performance. A normal pituitary adrenocortical system does not allow an organism to be subjected to a plethora of cortical hormone, but, at times of stress (trauma, infection, burns, starvation, exposure, exercise, etc.) rapid changes occur in the blood and the amount of hormone required to maintain a steady state in the body depends on the extent and duration of the stress. Hence, with the administration of cortisone, or ACTH in the presence of adequate adrenocortical reserve there occurs an increase in blood concentration of cortisone. It would appear therefore that the favorable results obtained with these substances represent, in part, a state of hyperadrenocorticalism, since there is no apparent evidence of endocrinological deficiency in these cases. However, the prolonged use of ACTH and cortisone may lead to a decrease in activity of the pituitary and adrenal respectively. Hence, the rationale of alternating these hormones in cases requiring long term therapy.

ACTH and cortisone have been employed with varying degrees of success in various mesenchymal, metabolic, allergic, neoplastic and infectious disease states. As yet, there is no evidence suggesting that these substances act as specific therapeutic agents, but rather give rise to certain physiological and pharmacological alterations in the tissues. The two drugs are comparable in effectiveness, with the exception that ACTH is preferable to cortisone in the treatment of gout and asthma. In general, the best results have been obtained in those conditions requiring short term administration, such as status asthmaticus, gout, acute rheumatic fever, gold toxicity, penicillin skin reactions, and certain acute infections of the eyes. Chronic diseases, such as rheuma-

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toid arthritis, requiring prolonged administration, will often relapse soon after ACTH or cortisone therapy is stopped. The transient relief of pain and sense of well-being afforded by the use of these drugs in such conditions frequently leaves the individual mentally, physically, and financially depleted. It would seem, therefore, that these substances should not be employed in chronic diseases, such as rheumatoid arthritis, except as a last resort and then in conjunction with other accepted forms of therapy.

Thus far, it has been difficult to have fixed dosages, as the needs vary in each individual case. Males seem to tolerate greater doses and longer administrations than females, especially those in adolescence or menopause. It appears that intermittent administration, or interrupted alternating courses of these hormones may provide a more physiological response than the use of either given continuously to the limits of individual tolerance. The smallest effective dose intermittently is the best guarantee against side effects. Not infrequently, the withdrawal of either ACTH or cortisone will give rise to untoward effects which are probably manifestations of a temporary reduction of adrenocortical function.

As indicated, the use of ACTH and cortisone is not without certain untoward reactions, many of which are troublesome, others are more severe, and some may prove fatal. Certainly, every precaution should be taken to keep these reactions at a minimum. One should not employ these drugs without proper knowledge of the adrenocortical reserve and a constant surveillance of the electrolytic balance of the body. The prophylactic administration of potassium chloride, a diet low in salt and high in protein, and a close watch on the patient's weight, cardiovascular system, and personality behavior is indicated. Also, the use of other hormones in combination, such as estrone to minimize possible menopausal symptoms, or testosterone for nitrogen deficiency, is worthy of trial. The judicious use of mercurial diuretics is of value for the control of edema due to salt retention. In addition, ACTH and cortisone should not be employed in patients suffering with congestive heart disease, coronary artery disease, acute and chronic nephritis, tuberculosis, peptic ulcer, hyperthyroidism, liver disease, sickle-cell anemia, or in individuals with an unstable emotional set-up. Furthermore, caution should be exercised in individuals with essential hypertension, diabetes mellitus, and in all patents over fifty years of age, especially women. It is to be remembered that ACTH and oral cortisone are not without antigenic properties and their repeated administration may give rise to serious anaphylactoid reactions. Although ACTH and cortisone have been used in a number of infectious diseases, it is well to point out that they may effect the antigen-antibody formation and hence retard recovery, whether they are used alone or in combination with appropriate antibiotics. It is possible that this suppression of antibody formation accounts for the unexplained drop in temperature and increased sense of well-being accompanying the unrestrained multiplication of bacteria in the tissues of individuals suffering with pneumonia and typhoid fever in which one of these hormones is employed. Abscess formation at the site of injection of these substances will occasionally occur and, even with large doses of antibiotics, such an infection has proved fatal. Furthermore, the increased susceptibility to upper respiratory tract infections in individuals receiving ACTH or cortisone may be explained on this basis.

Whether ACTH and cortisone were prematurely released for general use is, at this time, seriously questioned. No doubt many patients have been benefited, but large quantities of these agents have been inadvisably used with tragic results in some instances. Furthermore, the present day shortage of these substances might well have been averted, had the supplies remained in the hands of responsible investigators in

order that they be permitted to pursue further their studies in this relatively unexplored field of medicine. No doubt many hidden metabolic secrets will be revealed as a result of the use of these hormones, new operations will be made possible, such as adrenalectomy for hypertension and these drugs will undoubtedly be used as diagnostic agents, as in the differentiation between Loeffler's syndrome and tropical eosinophilia. Furthermore, it is within the realm of possibility that such conditions as prostatic hypertrophy and other glandular disturbances may be eradicated without the use of surgery. To be sure, the future of these substances remains uncertain, but one may feel reasonably sure that the mechanism of their action will prove a greater contribution, of far more significance than is implied in their present dramatic therapeutic role. However, until that time has arrived, we must content ourselves with the knowledge that these powerful hormonal substances should not be used without proper respect for their potential dangers and, regardless of their effectiveness, they are not to be employed to the neglect or exclusion of other well established forms of therapy.

Finally, the intelligent use of ACTH and cortisone calls for a careful clinical appraisal and a diagnosis which should, like the horse, precede the cart whose load of miracle drugs is getting heavier each day.

Harrison F. Flippin, M.D.

Dr. Flippin is Associate Professor of Medicine, Schools of Medicine, University of Pennsylvania, Philadelphia.

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## Floral Eponym

Rafflesia

Joseph Arnold (1782-1818)

Sir Thomas Stamford Raffles (1781-1826)

RAFFLESIA is a small genus of Malaysian stemless, leafless plants. The hugh flowers grow parasitically on the stems of various species of *cissus*. The flower of R. Arnoldi is the largest known and often attains a diameter of 3 feet and a weight of 15 lbs.

Joseph Arnold, M.D. was born at Beccles and graduated in medicine at Edinburgh (1807). He was a surgeon in the British navy and accompanied Sir Stamford Raffles on his journeys through Sumatra. He died in Sumatra of fever contracted on his explorations.

Sir Thomas Stamford Raffles was born at sea off Jamaica. He is spoken of by Singer as the greatest colonial administrator. He was Lieutenant-Governor of Java and secured Singapore for the British. He recognized the strategic importance of the tip of the Malay Peninsula. The Nepenthes (pitcher plant) Rafflesiana, which he discovered at Singapore, is also named for him. He was an authority on Malayan language, history and customs. He founded the Zoological Society and was its first president. His greatest claim to fame was that he secured for Great Britain the maritime supremacy of the eastern seas.

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# CARCINOMA OF THE BREAST: RADICAL MASTECTOMY, OOPHORECTOMY AND HORMONE THERAPY

GUY W. HORSLEY, M.D.,
Richmond, Virginia.

With the increased emphasis that has been placed on making an early diagnosis in all types of cancer, it seems fitting to review briefly the methods we have to aid us in the early detection of cancer of the breast and also discuss the treatment of this condition and the results that might be expected by combining surgery, X-ray and hormone therapy. We have made progress in the treatment of cancer of the breast, as statistics from the Health Department and medical clinics will attest. Much of the progress is due, however, to earlier diagnosis of the condition, although some of the advances, especially in the younger patient, can be attributed to the improved methods of treatment. It is now a well-established fact that hormone therapy has a permanent place in the treatment of this condition, both in primary carcinoma of the breast cases, and especially in the late and recurrent cases.

The diagnosis of cancer of the breast should not be difficult, and should always be early if a few simple rules are followed. The earliest symptoms are a lump or small mass in the breast, or an abnormal discharge from the nipple. Unfortunately, the patient frequently delays coming to the doctor until the mass has increased considerably in size and possibly metastasized. Education of the public is very rapid, and breast lesions are now being seen by the doctor earlier than ever before. Robbins *et al.*, in reporting experiences at Memorial Hospital in New York, found that in cancer of the breast there was almost 50 per cent reduction between 1946 and 1948 in the delay of time from the first symptom and the first visit to the doctor. This is most encouraging. It is the duty of the physician who first sees the patient to start her on the road of proper treatment.

Breast lesions may be divided into three classifications:

(1) Lesions which are more like thickened breast tissue than an actual neoplasm. In such cases a short period of close observation is justified, such as in mastodynia and chronic cystic mastitis which are frequently seen in young women in the premenstrual period.

(2) Lesions which are obviously neoplastic, but do not resemble malignancy. In these cases the future can be safeguarded only by an adequate biopsy and removal of the lesion. Proper preparation is essential so that a radical operation can be carried out under the same anesthesia if the lesion is found to be malignant.

(3) Lesions which are obviously malignant. The signs and symptoms of this third classification are well known to everyone, and the diagnosis here is no problem. It is the proper recognition of the first two followed by early treatment that will result in a larger percentage of five-year survivals and complete absence of recurrence.

Needless to say, any definite lesion, even though obviously benign, should be removed and examined microscopically while the patient is still under anesthesia. The indefinite thickened areas of breast tissue which are painful and seem to swell just before menstrual periods are in all probability mastitis and warrant careful watching for several subsequent menses. During this time all pelvic inflammation should be cleared up, the patient should wear a good breast support and apply heat to the painful area of the breast twice a day. The judicious use of progesterone or androgen in certain cases may be justified. None of these treatments should be used if there is a definite discrete mass, but only when there are thickened and painful areas of breast tissue. If after this supportive treatment the thickening and pain have not subsided, then a biopsy should be performed.

Abnormal discharge from the nipple is one of the most urgent signs for consultation. In practically all of these cases the discharge is due to some neoplasm. Donnelly, in reviewing 219 such cases, found that 45 per cent were caused by a malignant lesion, 30 per cent by intraductal papilloma, 22 per cent by chronic cystic mastitis, and only 3 per cent by other causes, such as retention cysts, galactocele and in-

Presented at the annual meeting of the Medical Society of Virginia at Roanoke, October 10, 1950.

*From the Surgical Department, St. Elizabeth's Hospital, Richmond, Virginia.

flammation. He also noted that while sanguineous discharge was most frequently seen to come from malignant conditions, malignancy was also found in many cases that had serous or yellow drainage. From personal experience, and reports such as Donnelly's, it is apparent that any discharge from a non-lactating breast, whether a mass is palpable or not, deserves immediate attention and no temporizing treatment should be countenanced.

Now, a word about biopsies. It is my firm belief that no biopsy should be done on a breast lesion until the patient has been properly prepared for a radical operation, for, if such an operation is necessary, it should be done under the same anesthesia. Time and again it has been shown that delaying the radical amputation after biopsy, even a day, results in a higher percentage of recurrence of the malignancy. Some investigators report that delaying the radical operation after biopsy has increased the rate of recurrence as much as 15 per cent. I do not favor aspiration biopsy in breast lesions. Microscopic review of many of the early cases of carcinoma will show localized areas of mastitis which could be easily misleading in aspiration biopsy. The gross appearance and feel of the lesion are a valuable aid in diagnosis and are not available in the needle biopsy. Aspiration biopsy is only about 85 per cent to 90 per cent accurate in the most expert hands, and, if negative, an open biopsy will usually be required. Therefore, we believe this latter type of biopsy is unquestionably the one of choice.

If at biopsy malignancy is found, the wound should be completely closed and the radical operation started after a complete new preparation of the skin and change of drapes, gowns, gloves, and instruments. In making the biopsy incision, it is best to make it directly over the tumor, and if the tumor is small and discrete, the entire tumor should be removed with a small margin of normal breast tissue. If the tumor is benign, no further incision is necessary and the operation is complete after closure of the wound. The biopsy incision should never be used as part of the incision of the radical amputation, but it should be excised along with the skin and breast and underlying structures. Ideally, the biopsy incision should be in the center of the skin removed at the radical operation.

Once the diagnosis of malignancy has been made, a radical operation should be carried out without delay. There is almost complete unanimity of opinion that a radical amputation of the breast in those cases which do not have remote metastases is the treatment of choice. Obviously in a patient with metastasis to the bones or the lungs, such an extensive operation would be contra-indicated. In cases that are apparently malignant before operation, in addition to the routine history, laboratory studies, and physical examination, an X-ray examination should be made of the ribs and lung fields to rule out the possibility of metastasis in those regions. In all cases, except those with severe systemic diseases and distant metastases, a properly executed radical amputation of the breast seems to give the best end-results, particularly when combined with X-ray and hormone therapy. In recent years there have been only one or two authors who claim that in their clinics results equal to those obtained by radical amputation have been obtained by simple amputation followed by intensive X-ray therapy.

McWhirter, in reporting on 1,334 cases from Scotland, showed a five-year survival of 43.75 per cent in 218 of these cases, with 62 per cent five-year survival in Stage I—that is, carcinoma limited to the breast—, and 29.0 per cent five-year survival in Stage II—those with metastasis to the axilla. He reported in all cases 56 per cent localized entirely to the breast and 44 per cent showing metastasis. H. G. Bell in 1949, reporting on 819 cases, gave a 32.2 per cent five-year survival and operative mortality of .8 per cent. There was a five-year survival of 61.8 per cent in Stage I and 39.8 per cent in Stage II. MacFee reports essentially the same results. Both of these latter authors state there is no apparent difference in the results on patients who had pre- and postoperative radiation and those who had no radiation whatsoever. The results that McWhirter reports with simple amputation followed by X-ray have not been experienced by investigators in the United States and Canada.

I shall not attempt to describe radical amputation in this paper. Suffice it to say that it should include removal of all of the breast tissue and its overlying skin, with the division of the pectoralis major and minor muscles close to their insertion, and careful dissection of the axilla with its nodes and contents, leaving only the larger vessels and nerves. However, if these latter structures are involved, one should not hesitate to include them in the dissection. The

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dissection is carried medially to the midline so that the fascia over the sternum and a small margin of the fascia of the opposite pectoral muscles is included in the dissection. It then extends downward to include the upper portion of the fascia of the two recti muscles, laterally to the latissimus dorsi muscle, and to include part of its fascia and the fascia over the serratus anterior muscle. In our opinion, the majority of these cases can be done by careful undercutting of the skin flaps, leaving a minimal amount of subcutaneous tissue attached to the flaps so that the wound can be closed under moderate tension but without skin grafts. It has been found advisable to make small stab wounds in these skin flaps which give more relaxation and also prevent venous congestion. A rubber tissue drain is placed in the lower angle of the wound and a catheter is placed in the axilla and brought out through a stab wound in the outer flap. The wound is first dressed with one strip of vaseline gauze and over this is applied an abundant firm dressing. Suction is placed on the catheter at intervals. This causes a collapse of the dead space in the axilla, and since using this method we have found there has been less drainage and the wounds have healed more readily. It has been our impression that in keeping down the collection of serum in the axilla by this catheter, there have been fewer cases of postoperative edema of the arm.

In those patients who have microscopic evidence of metastasis in the axilla we have followed the practice of giving postoperative radiation over the areas of metastasis, but we have not given postoperative radiation in those cases where the malignancy was confined to the breast.

Estrogen has a stimulating effect on both normal and malignant breast tissue. It has been shown that large doses of estrogen will produce breast cancer in experimental animals. On the strength of these facts, in 1937 surgical castration on patients with carcinoma of the breast in the premenopausal period was begun by the late J. Shelton Horsley and has been carried on up to the present by us at St. Elizabeth's Hospital. The results have been so encouraging that within the past few years we have extended surgical castration to persons who have had the menopause within the past two years. These cases are too recent from which to draw any conclusions but are satisfactory enough to warrant continuation of this plan. Also since April, 1948, all patients who have surgical castration at the time of operation are given androgens daily for two weeks on the theory that this will immediately counteract the effect of the estrogens which are left in the body after castration. The theory and our reasons for doing surgical castration in premenopausal patients with carcinoma of the breast have been given in former papers (Bilateral Oophorectomy with Radical Operation for Cancer of the Breast, by J. Shelton Horsley, *Surgery,* **15**:590-601, April, 1944; and Treatment of Cancer of the Breast in Premenopausal Patients with Radical Amputation and Bilateral Oophorectomy, by Guy W. Horsley, *Annals of Surgery,* **125,** No. 6, June, 1947). Much to our gratification this practice of castration seems to be accepted and is definitely on the increase.

Whenever we speak of this procedure, the question of menopausal symptoms is brought up. We follow all these cases carefully for years and there have been very few symptoms which could be attributed to the removal of the ovaries. If the patient's condition is very carefully explained to her, then the postoperative period is usually uneventful. The few menopausal symptoms can usually be controlled with mild sedatives; but, if they continue, the judicious use of androgens either by mouth or injection has been able to allay all symptoms. Under no circumstances, should estrogens be used in these cases. Unfortunately, I have seen one case, and Farrow reports several cases, in which estrogens were used on the postoperative management of cases with carcinoma of the breast, and in each case it has seemed to "set them on fire" with rapid and overwhelming metastases.

It is fairly well known now that castration in the adult female often does not alter libido, and this has been found to be true in our series of cases. Each case has been carefully questioned on this point, and no definite change has been noted by any one of them.

From January 1, 1937, to July 1, 1950, there have been 266 patients admitted to St. Elizabeth's Hospital for carcinoma of the breast, and all but one of these has had some type of mastectomy. That one case was too advanced even for a simple mastectomy and a biopsy was done for diagnosis. The patient was given X-ray therapy and died eleven months later from the malignancy. All of the other cases had radical amputation or simple mastectomy, and there were only three postoperative hospital deaths. One patient died in 1939 from bronchopneumonia 25

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TABLE I—CARCINOMA OF THE BREAST
St. Elizabeth's Hospital, Richmond, Virginia
January 1, 1937 - July 1, 1950

| | | Living and well | Living with metastasis | Died with recurrence | Died from other causes | Incomplete follow-up |
|---|---|---|---|---|---|---|
| Total cases | 266 | 151 (56.7%) | 3 (1.1%) | 83 (31.2%) | 16 (6.01%) | 13 (4.88%) |
| Oophorectomy | 53 | 35 | 2 | 15 | 1 | 2 |
| Without metastasis | 26 | 21 | 0 | 5 | 0 | 0 |
| With metastasis | 29 | 14 | 2 | 10 | 1 | 2 |
| Non-oophorectomy | 211 | 116 | 1 | 68 | 15 | 11 |
| Without metastasis | 113 | 78 | 0 | 20 | 8 | 7 |
| With metastasis | 98 | 38 | 1 | 48 | 7 | 4 |

days postoperatively, another in 1939 from pulmonary embolism which occurred just as the patient was dressing to leave the hospital 20 days postoperatively, and the third in 1945 from thrombosis of the axillary vessels with sepsis 14 days postoperatively. All three of these patients had had radical amputation of the breast. In these 266 cases there were only 41 simple amputations, and with the one case with only a biopsy there were 224 radical amputations. The simple amputations, which included complete removal of the breast and overlying skin and also the fascia of the pectoralis major muscles, were done mainly as a palliative procedure, either because the lesion was breaking down and ulcerating, or because there were extensive metastases and complete removal of the malignancy was out of the question, or because there was general debilitation of the patient. All cases have been included and have been divided into only two classifications—those with the lesion confined to the breast and those with metastases outside of the breast, there being no effort made to divide and break up the classification of metastasis. If the obviously inoperable cases had been eliminated from those classified here as "with metastasis", the incidence of survival would be higher.

In Table I there is a break-down on all cases, showing the total of 266, of which 151 (56.7 per cent) were living and well on July 1, 1950, and 3 (1.1 per cent) were living with known metastases. There were 83 (31.2 per cent) dead from metastases or recurrence of the disease, and 16 (6.01 per cent) who died from causes other than cancer of the breast or its metastases. There were only 13 (4.88 per cent) cases whose follow-up was incomplete and the results are not known. There were 139 cases without metastases and 127 with metastases. During this period there were 55 cases who had surgical castration and in these cases more than 50 per cent had metastasis at the time of operation, but, even so, 35 were alive and well. The Tables show that almost half (48.2 per cent) of those who had metastases and were castrated were alive and well, while in the older age group of the same type only 38.8 per cent were alive and well.

It has been the custom to judge results of cancer treatment by the five-year survival rate. This is a good standard, but we all know that after five or even ten years there are recurrences. Recently there was a death from recurrence of breast cancer in a patient who had been operated upon 23 years pre-

TABLE II—CARCINOMA OF THE BREAST
St. Elizabeth's Hospital, Richmond, Virginia
January 1, 1937 - December 31, 1945

Five-year Survival Cases

| Total | | Five-year survival | | Died from recurrence | | Died from other causes* | | Incomplete follow-up | |
|---|---|---|---|---|---|---|---|---|---|
| | | Without metastasis | With metastasis | Without metastasis | With metastasis | Without metastasis | With metastasis | With metastasis | Without metastasis |
| All cases | 189 | 82 (85.5%) | 38 (44.7%) | 12 | 42 | 2 | 5 | 4 | 4 |
| Non-oophorectomy | 152 | 66 (83.6%) | 26 (39.4%) | 11 | 36 | 2 | 4 | 4 | 3 |
| Oophorectomy | 37 | 16 (94.1%) | 12 (63.2%) | 1 | 6 | 0 | 1 | 0 | 1 |

*This includes all hospital deaths which totalled 3; 1 in 1939 from bronchopneumonia 25 days postoperatively, 1 in 1939 from pulmonary embolism 20 days postoperatively, and 1 in 1945 from thrombosis of axillary vessels with sepsis 14 days postoperatively.

viously. The recurrence was both local and into the chest cavity. For comparison of results obtained, the five-year period seems to be accepted as the standard. In Table II the results from our cases may be observed, but it should be noted that we state five-year survivals and not cures. Unfortunately, many of these living at five years may die of recurrence.

There were 189 cases who had been operated upon for five years or more, and of these 37 had had oophorectomies. Of those who did not have metastases, 82 (85.4 per cent) are alive and well, and of those who had metastases 38 (44.7 per cent) are alive and well. Of the 37 who had oophorectomy 17 did not have metastases and 16 (94.1 per cent) were alive and well, while 20 had metastases and 12 (63.2 per cent) were alive and well after five years. These results are far better than those that were obtained before castration was being done.

## SUMMARY

1. By education of both laymen and physicians, the surgeon is seeing carcinoma of the breast much earlier now than five years ago.

2. Any and all breast lesions should have a biopsy and a radical operation carried out immediately if the lesion is found to be malignant.

3. Radical amputation of the breast is the recognized treatment of choice in cancer of the breast.

4. Preoperative radiation seems of little value, and postoperative radiation seems to be of value only in those cases with definite axillary metastasis.

5. Surgical castration of patients with carcinoma of the breast who are within the premenopausal period has increased the incidence of five-year survival.

6. Menopausal symptoms have not been a problem in these castrated women, and all have been easily handled without ever resorting to the use of estrogens.

7. Androgens are useful in the control and treatment of cases with bony metastases, reducing the size of the metastases temporarily and helping control pain.

8. Under no circumstances should estrogens be used unless the patient is at least sixty years of age and fifteen years past menopause. Even then they are only of doubtful value in soft tissue metastases.

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## DISCUSSION

DR. HUGH H. TROUT, JR., Roanoke: I regret very much that Dr. Horsley could not be here. He and his father, as you all know, were amongst the first to start surgical castration in the treatment of carcinoma of the breast; and this theory, while not entirely accepted throughout the country, has certainly been given national recognition.

I do not know whether there is any great advantage in surgical castration over irradiation castration. There could well be. Dr. Horsley's results are certainly excellent and I believe that only time will tell whether surgical castration eliminates something that irradiation castration does not. I do not know.

It has been our practice to give irradiation castration in all premenopausal carcinomas of the breast unless there is some complication such as a pelvic tumor or pregnancy. In these cases surgical castration rather than irradiation is given.

I would like to emphasize again Dr. Horsley's warning about the use of hormones in the treatment of breast conditions, whether it is chronic mastitis or mastodynia. Progesterone given before the menstrual period in severe cases of chronic cystic mastitis is probably justifiable in certain cases and gives as good or better results and is much safer than theelin.

Dr. St. Johns and others have been treating late cases of carcinoma of the breast with testosterone for several years now and that work has been generally accepted; and I think all of us who have used this have been most gratified by the subjective and in many cases striking objective improvement in the condition of a patient suffering from carcinoma of the breast.

In connection with cancer of the breast there is one question that comes to mind, and that is, should we operate on all these patients? Haagensten and Stout have brought out their criteria of operability which I would like to give you.

First, when carcinoma is one which develops during

pregnancy or lactation; second, when extensive edema of the skin over the breast is present; third, when secondary nodules are present in the skin over the breast; fourth, when distant metastases are present; fifth, when there is edema of the arm; sixth, when the carcinoma is of the inflammatory type, and, seventh, when any two or more of the following are present: ulceration, edema of the skin, fixation of the tumor to the chest wall, axillary nodes measuring 2½ cc. and more, or fixed axillary glands.

I do not think that we can apply these criteria too strictly, and yet, perhaps, if we did limit a few of our cases, the results in those cases might be better than if the patient were subjected to operation, and, in addition, the public might become more amenable to the idea of operation. It is becoming increasingly rare, however, for a patient to refuse the proper therapy.

Dr. Horsley's paper was certainly a thorough one and I agree with him in just about everything he said; and it is our practice to follow out more or less the same therapy, the one exception that I can think of is that we do give post-operative irradiation in all cases on the theory that it might do some good, and it is not going to do any harm except slightly increase the financial burden and time for the patient, and that is well worth it to the patient.

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## Bibliotheca Obstetrica

VARANDAEUS, JOH. (1563-1617)

Posthvmvs/10. VARANDEEI/ Monspeliensis medici/ primarii. consiliarii/ atque adeo professoris regii/ in Vniuersitate, ex Bibliotheca/ ipsius depromptus, atque/ in lucem editus/ *De morbis & Affectibus mulierum.*/ Opera Petri Mylaei doctoris medici./ Hvic accessit brevis, facilis,/ *& particularis epilepsia, podagra, hydrop/* & lepra curatio./ Lugdvni,/ Sumptibus Bartholomaei Vincentius/ M.DC.XIX./ *Cum priuilegiis./*

Present day interest in Varandaeus is due solely to his being reputed to be the first to use the word *eclampsia* as the name for puerperal convulsions. F.Bernhart (*Wien. klin. Wchnschr.* **52**:1009,1939) makes the positive statement that Varandaeus in the introduction of his *De Morbis & Affectibus Mulierum,* 1619, used the word eclampsia in its present meaning. I have a microfilm of the title page, table of contents, the introduction and chapter VII, *De uteri suffocatione* of the first edition which is in the Army Medical Library. I can find nothing about eclampsia therein. Dr. James V. Ricci has searched the New York Academy of Medicine's copy of the second edition with like results.

Very little is known about the author. A teacher of medicine at Montpellier at the end of the 16th and beginning of the 17th Century, he was born in the City of Mimes, studied and received his degree at Montpellier (1587), became in 1590 the successor of Nicholas Dortoman, Dean of the faculty in 1609 and vice-chancellor and died as dean, August 31, 1617. He was an extraordinarily beloved teacher. After his death his pupils published several of his original MSS. and lectures. In 1658 Henry Gros, a physician of Lyon, gathered these together under the title "Joanius Varandali, Opera Omnia and fidem codicum ipsius autores manuscriptorum recognita et emendata, etc." This, however, lacked the treatise on Elephantiasis (Astruc. Mémories, p. 251 in Biogr. méd. VII p. 397, Dict. hist. IV. p. 308)

Mylaeus, or van der Myle (Petrus) commonly called Rota, a doctor of Löven, fl.1612 was blind and lame. He edited in 1619 Joh. Varandii Tract. posthumum de morbis & affectibus mulierum. (Jöchers Gelehrten Lexicon)

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# STENOSIS OF THE ANUS OF FUNCTIONAL ORIGIN—HABITUAL USE OF LAXATIVES*

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In the course of examining patients with rectal and pelvic complaints a certain number are found who have an anal lumen so small that digital examination of the rectum is difficult or even impossible. The difficulty is not due to sensitiveness and spasm, such as that associated with anal fissure, but represents a completely inelastic stenosis apparently caused by fibrosis of the sphincter or the sphincter region. During a period of about twelve years 90 private patients have been treated for this condition. In many instances the results were so dramatically successful that a study of the whole group seemed desirable.

No attempt has been made to comb medical literature for similar studies. Only one article of similar subject matter will be cited. Newton and MacGregor reported 21 cases apparently quite similar to those of the present report. They stated that although spasm and fibrosis of the anal sphincter constitute a frequently observed clinical entity, little has been written about it.

The patients presented many and varied complaints. Abdominal discomfort, ano-rectal symptoms and constipation, singly or in combination, were commonest. All of them gave a history of using laxatives or enemas or both for a long time, frequently many years. Mineral oil alone or in various mixtures was one of the commonest laxatives employed. Women outnumbered men in the group, five to one. Practically all were over thirty years of age and most over forty but under sixty.

Almost always the onset of the trouble had been insidious. An occasional laxative had led gradually to frequent laxatives and finally a laxative daily or oftener and sometimes supplemented by enemas. Many patients stated they had not passed a formed stool or had a spontaneous defecation for many years.

In many, the prolonged use of laxatives or enemas or both had led to considerable irritability of the colon. "Colitis", "mucous colitis", "spastic colon", "irritable colon" and other similar designations of their symptoms were used by various patients. Some tenesmus, passage of mucus and even of blood, abdominal pain and sometimes severe abdominal cramps seemed to be the result in some cases.

Examination of the patient was, with few variations, similar in all instances. There was a small anus that was little if any more than 1.0 to 1.5 cm. in diameter, admitting no more than the examiner's fingertip. In a few the examination was said to be painful, sometimes markedly so. In the latter group the sphincter seemed spastic as well as fibrosed. In all, however, there was palpated an inelastic stenosis of the anus involving the regions of either the internal or the external sphincter or both. Even under anesthesia the inelastic character of the stenosis was always evident, sometimes markedly so. Because of the anal stenosis, digital, proctoscopic, and x-ray examinations were seldom possible before treatment, but were made at the time of or after treatment, as indicated. No case of cancer or other serious disease was later encountered in any of the patients of this series, though one case of rectal carcinoma was found in the series of Newton and MacGregor.

Associated abnormalities were infrequent. There were only a few instances of hemorrhoids of consequence and, similarly, a few instances of rectocele associated with old lacerations of the birth canal. Anal fissure was rare because stools had been kept liquefied by the patients.

The diagnosis was obvious in all cases. It was often suggested by the history and finally confirmed when digital examination was made or attempted.

Since no tissue was excised in any instance, the pathology must be, for the most part, a matter of conjecture. Among the patients of Newton and MacGregor, however, the entire anus was excised and studied in one case. The only abnormality demonstrated microscopically was a moderate amount of fibrosis of the subcutaneous tissue, most apparent in relation to the internal sphincter.

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*Read before the annual meeting of the Medical Society of Virginia, at Roanoke, October 8-11, 1950.

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Treatment was the same in all instances, digital dilatation of the anus under either general or subarachnoid block anesthesia followed by certain directions given the patient to follow. From the time the condition was first recognized, twelve years ago, it seemed evident that physical measures must be employed to correct it. Digital dilatation under anesthesia seemed to offer the most painless, the quickest and the best method. Experience has confirmed this impression.

In the uncomplicated case the person was treated as an out-patient in the operating room. In most instances nitrous oxide-oxygen anesthesia by inhalation was employed. Induction was rapid, the duration short, and recovery quick, so that patients usually returned home from the recovery room within the hour. The dilatation itself was done with plenty of lubricant and a rotary manipulation of the gloved fingers. First one, then two, and finally three fingers were introduced as far as the proximal interphalangeal joints, dilating the anus to a diameter of between 3 and 4 cm. No sphincter incision was made in any case and no serious rupture or tear of any sphincter occurred. Superficial mucosal cracks were evident in all instances and localized small hematomas at the anal margin were not uncommon. Some were evacuated by a scissor cut into them. Also, associated trouble such as hemorrhoids, rectocele, and so forth, were treated at the same time if indicated. No second or multiple dilatations have been employed subsequently.

Directions for the patient to follow after digital dilatation seemed probably important to avoid recurrence of anal stenosis. Four commandments were issued for immediate and continued use:

1. No laxatives of any kind and no enemas.
2. Some vegetable bulk at both noon and evening meals.
3. Some fruit or fruit juice at each meal.
4. Some fluid, a cup to a glass full, each hour during the day.

Results, both immediate and remote, have been excellent. Pain has not been more than moderate and that for only a very few days. Bleeding has been absent or very slight. Incompetence of the sphincter has resulted for only a few days in only a few patients. Regular defecation has resulted from the treatment in the majority of patients followed for from 6 months to 12 years.

Follow-up letters were prepared for the entire group of 90 patients. Because of change of address and other factors no more than 82 reached their destinations. Of this number 75 replies have been received (91 per cent). Fifty-eight of the 75 (77 per cent) reported restoration of satisfactory bowel activity. No second or multiple dilatations were reported.

Many of those reporting good results wrote enthusiastic letters supplementing their questionnaires. For instance: "As you see I was completely made over by the dilatation, am now 80 years (old) and still going strong—".

Another wrote "I should like to say that I cannot inmagine any operation being more successful than this particular one was in my case. I was taking great quantities of mineral oil daily and over a period of some years I had relied on this completely. Following the operation in 1941 I gave this up completely and followed your advice very strictly. I *never* take a laxative".

Of 17 patients reporting unsatisfactory results, most had had good initial results but all but one had by their own admission, failed to follow instructions. Eight of them have more or less psychopathic personalities with multiple complaints and various fixations in addition to those related to defecation. Several wrote letters supplementing their questionnaires. In most instances after reading the answered questionnaires and the letters it was quite evident why the results of the anal dilatation had been unsatisfactory. Postoperative directions had been imperfectly followed or completely ignored.

## DISCUSSION

Many factors such as food, fluids, exercise, habits, and so forth are related to defecation. A stool is composed chiefly of residue left after the digestion of food. The amount of the stool is more or less in proportion to the amount of food eaten except that, in the case of certain foods, absorption is so great that little residue remains. This is true of most liquids and some so-called low-residue foods. The greatest amount of residue is left after the digestion of foods that contain a large amount of cellulose such as many vegetables and fruits do. A useful simile in explaining these facts to patients is a fire. Bulky fuels such as wood and coal leave ashes. Concentrated fuels leave little if any ashes.

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My observation of these and other patients leads me to believe that fluid ingested markedly influences defecation. The consistency of the stool apparently varies with the amount of fluid ingested and the amount absorbed from the feces by the intestines, especially the colon. Inadequate fluid intake may be responsible for over-firm or hard or dessicated stools that may be difficult or impossible to pass, even through a normal anus.

The influence of physical exercise and habit on bowel activity may often be marked, but will not be discussed at this time. The factors governing normal defecation unfortunately are not known to patients and are not explained to them by their physicians who themselves do not seem to understand the physiologic processes concerned.

Unfortunately, the laxative manufacturers have made capital of this state of affairs. Low-residue modern prepared foods, sedentary urban life, diminished fluid intake, and lack of adequate or a regular time for defecation all conspire to cause what is commonly called "constipation". Depending on the factors cited above, many individuals might be entirely well and comfortable, yet have a stool only once in two, three, or more days. But the impression has gained almost universal acceptance that anything less than at least one stool a day is "constipation" and "necessitates" a laxative. Thus the vicious circle is initiated, more and more laxative, less and less formed and spontaneous stools, finally complete dependence on laxatives, often stronger and stronger, enemas, constantly liquid stools, anal shrinkage, fibrosis and finally inelastic stenosis which precludes defecation of formed stools and actually does necessitate liquefying laxatives or enemas. Psychogenic abnormalities may play an important role, either primary or secondary, in some instances. This was quite evident in several patients of the present series and probably accounts for nearly half, if not more, of the unsatisfactory results.

The patient who has for months or years prescribed for himself with no other advice than that of his neighbors, his newspaper or magazine or his favorite radio announcer finally, in desperation, consults a physician. The physician all too frequently fails to realize that anal stenosis exists and, although he prescribes adequate dietary measures and possibly even adequate fluid intake, cannot relieve the patient except by the continued administration of laxatives to compensate for the mechanical impossibility of passage of formed stools.

Experience with these 90 patients over a period of 12 years, including many personal interviews and examinations, leads me to the belief that the practical results of digital dilatation of functionally induced stenosis of the anus followed by the recommended management of bowel activity has given even better results than the follow-up letter figures indicate. Some of those necessarily tabulated as poor results were, as mentioned previously, emotionally unstable and inadequate individuals unable or unwilling to follow directions or "discard their crutches". They sought relief less than confirmation of their own convictions of incurability.

## SUMMARY AND CONCLUSIONS

In 12 years 90 private patients were treated for anal stenosis resulting from habitual use of laxatives. In 58 of 75 patients recently reporting by letter the results were satisfactory. Treatment was by digital dilatation under anesthesia and subsequent management of food and fluid intake. Failure to follow directions following dilatation and psychogenic dyscrasias seemed to be responsible for most of the unsatisfactory results. In the absence of organic disease of the large bowel, adequate understanding of the factors relating to defecation, reasonable attention to food and fluid intake, and avoidance of the first dose of laxative would probably make the use of laxatives forever unnecessary for insuring normal defecation.

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### DISCUSSION

DR. H. L. ARCHER, Charlottesville: I want to thank Dr. Morton for pointing out to us, as he says, such a lowly subject but one which, as you know, is a very important subject at this time. With their present sedentary life and the concentrated foods that they use, many of the patients whom we see in our offices complain of constipation and other things. Dr. Morton has pointed out the complications which can arise from the use of cathartics; so it would seem a good idea for us to take a little more time and make a rectal examination and take time to outline a routine for more regular bowel movements rather than simply write out a prescription for another cathartic

and let it go at that. Dr. Morton has outlined a good routine for obtaining bowel movements in patients who will take the time to follow it.

I think this may bring out a complication which we have to watch for when doing anal surgery. When there is a fresh wound in the anal canal we all start the patient on some laxative, to promote bowel movements. It is also important, after the wound has healed, to see that the patient stops the use of the laxative, to make sure he will not wind up with a shrunken, narrow anus.

There is one question I want to ask Dr. Morton. With so many people taking laxatives these days, many of them taking them daily and saying they never have a natural bowel movement, why is it that so few of them wind up with stenosis of the anus? Is there anything in the past history of these patients which indicates that in the past they may have had some disease of the anus, such as cryptitis, which was responsible for the narrowing of the anus but which may have healed by the time the examination was made?

I want to thank Dr. Morton for the opportunity of discussing this paper.

DR. MORTON, closing the discussion: I appreciate Dr. Archer's discussion, and I should like to stress again the statement he made in reference to the use of laxatives after anal operations. I think that is a good point. I have seen a number of cases in which the use of mineral oil, particularly after hemorrhoidectomy, has produced anal stenosis.

Dr. Archer's question as to the incidence of previous anal disease is a good one. I cannot, however, answer it. There may be a relation between the anal stenosis and some prior cryptitis. There may be a time element, too. Maybe some younger people have not been taking laxatives long enough, or maybe the period of the popularity of laxatives has not been long enough.

Of course, my series of ninety cases is not a large one. Perhaps this condition does not occur universally in patients who take laxatives, although I begin to think that the use of laxatives perhaps is universal.

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### Streptomycin to Treat Tuberculosis in Children.

Streptomycin has proved valuable in treating tuberculosis in children under 12, according to an article in the April 7th *Journal of the American Medical Association.*

Drs. William Berenberg, Charles D. Cook and Claire W. Twinam of Boston, authors of the article, tested the drug on 27 children between the ages of 7 weeks and 17 years.

They reported the following results: the disease was arrested in five, 18 were improved, three were unimproved and one was worse. The patient who became worse was a 7-weeks-old infant who developed tuberculous meningitis. All three of the patients who did not improve were over 12 years of age. Eight patients over 12 received the drug but only two appeared to derive any lasting benefit from it. They explained that tuberculosis in children under 12 is somewhat different from the type encountered in adults and children over 12. Most children between the ages of 3 and 12 do well without specific treatment.

The 27 children who received the drug were selected because they failed to improve with the usual treatment.

Streptomycin may be expected to "supplement but not replace" the time-tested measures of prevention of reinfection, hygienic regulation, dietary supervision, adequate rest and nursing care in the treatment of tuberculosis in children.

### Aids Hearing Ability.

A surgical procedure known as fenestration has brought increased hearing ability to 70 per cent of a group of deafened patients, reported in the current issue of *Archives of Otolaryngology,* published by the American Medical Association.

The patients were suffering from a progressive type of deafness called otosclerosis, according to Drs. Louis E. Adin, Jr. of Dallas and George E. Shambaugh, Jr. of Chicago, authors of the article. Otosclerosis is caused by bony growth in the passageway which carries sound to the inner ear. Fenestration creates a substitute channel through which sound can enter the ear.

The operation was performed on a series of 390 patients from 1940 to 1945 and results have now been observed from five to 10 years. Seventy per cent of the patients received a "significant hearing improvement and have maintained it." Twenty per cent lost a part of their initial gain but still have a usable level of hearing. Five per cent had no hearing improvement at all and another five per cent had bony closures of the opening.

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# PRESENT TRENDS OF COLLAPSE THERAPY IN TUBERCULOSIS

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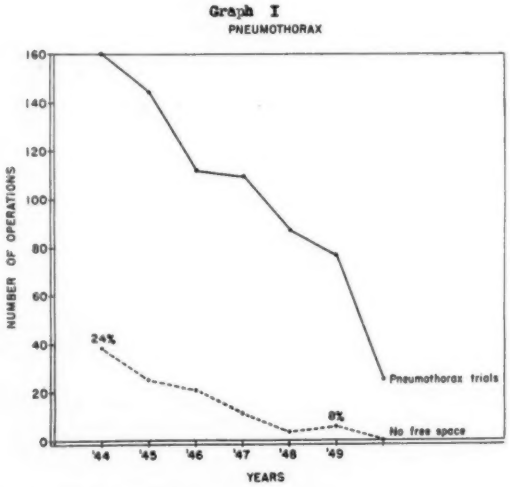
The value of collapse therapy as a supplement to bed rest in the treatment of pulmonary tuberculosis is generally recognized; however, there is little unanimity of opinion as to the proper choice of collapse measures. In recent years there has been a great impetus to the use of artificial pneumoperitoneum. This procedure had been known for a long time but did not become generally used until reports from the various Veterans Administration Hospitals and other sources began to appear. With the increased use of artificial pneumoperitoneum, there have been other changes in emphasis and this paper is intended to illustrate certain trends of collapse therapy at Blue Ridge Sanatorium in the past several years.

This data is based on material gathered from the annual reports of the Sanatorium to the State Health Department covering the six fiscal years between

Graph I

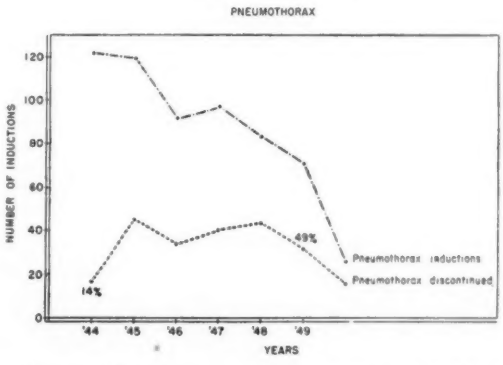



July 1, 1943, and July 1, 1949. It does not show the exact number of procedures carried out in any given year, but represents an analysis of the therapy which had been carried out on discharged patients at some time during their sanatorium stay. Figures are also included for the time between July 1, 1949, and April 1, 1950, the latter having been obtained from our current records.

The first graph indicates the diminished use of pneumothorax. Cases now selected for pneumothorax are rarely encountered in which no free pleural space can be found. There is a definite tendency to avoid even trying pneumothorax on those cases in which there appears to be little hope of obtaining a collapse. Certain absolute contraindications to pneumothorax are recognized. Some of them are: a. large apical cavity, especially if thick-walled; b. very extensive destruction; c. bronchostenosis. Those cases with active bronchial tuberculosis or tuberculous pneumonia may be temporarily or permanently unsuitable for pneumothorax.[1]

As a corrollary to the diminished number to cases selected for pneumothorax therapy, there are relatively many patients on whom refills are discontinued while still in the sanatorium, as is indicated in Graph 2. In 1944, of those patients discharged who

Graph II



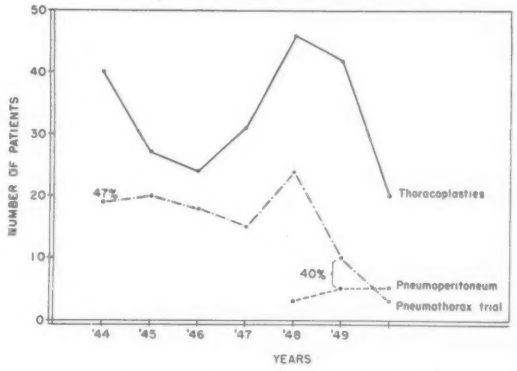

had been tried on pneumothorax, 14 per cent had had their refills discontinued while in the Sanatorium; whereas, in 1949, nearly half of those people who had been started on pneumothorax were stopped while in the institution. Some of the reasons for stopping pneumothorax were: a. persistent fluid for-

1. Rafferty, T. N.: Artificial Pneumothorax—page 41—published by Gene & Stratton, New York, in 1947.

mation; b. gross adhesions which could not be severed by closed pneumonolysis; c. fluoroscopic and x-ray evidence of thickening pleura which was adjudged to threaten future efforts to re-expand the lung; and, d. obliterative pleuritis. Positive pressure pneumothorax is considered hazardous and is practically never continued; this type of pneumothorax is seldom seen in the absence of one or more of the complications just outlined. The unexpandable lung necessitating a choice between permanent pneumothorax refills, allowing fluid to fill up the space, or an extensive thoracoplasty to close the pleural space is evidence of an unwise decision to continue a "therapeutically effective but anatomically poor pneumothorax." With this conservative attitude, the incidence of tuberculous empyema complicating pneumothorax at Blue Ridge Sanatorium has been reduced from approximately 15 per cent in 1938 to less than 1 per cent in 1949.

Graph III

PRIMARY AND SECONDARY THORACOPLASTIES

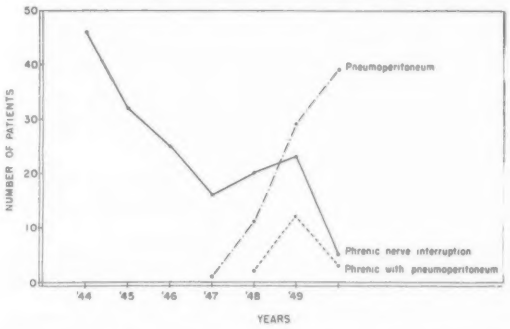



Graph 3 indicates the increasing use of primary thoracoplasties. Those patients presenting one or more of the previously outlined contraindications to pneumothorax comprise the greatest proportion of cases selected for this procedure. It will be noted that in 1944 almost half of the thoracoplasty cases had been previously tried on pneumothorax as compared to about one-fourth in 1949. Another group of patients was tried on pneumoperitoneum in 1949. It is not included in the graph, but it is worth mentioning that for the current fiscal year our records show that 25 per cent of the thoracoplasty group were previously tried on pneumoperitoneum and only 15 per cent were tried on pneumothorax. This gives a further indication of the tendency of pneumoperitoneum to replace pneumothorax as a preliminary procedure in collapse therapy. We wonder if the pendulum is not swinging too far away from pneumothorax? The graph gives a misleading idea of the place thoracoplasty has in the therapy of pulmonary tuberculosis. Other cases which had thoracoplasties and are not included in this graph were admitted to the Sanatorium from the University of Virginia Hospital following operation. The limited number of beds available for surgical patients both at the Sanatorium and the University of Virginia Hospital, where these operations are performed, accounts for this small number.

Pneumoperitoneum is now used extensively at Blue Ridge Sanatorium as at other places concerned with the treatment of tuberculosis (Graph 4). The

Graph IV

PNEUMOPERITONEUM AND PHRENIC NERVE INTERRUPTIONS




relative safety of pneumoperitoneum, the ability to discontinue it or to reinstitute the procedure and its applicability to patients with bilateral extensive disease, unsuitable for other collapse measures, make it attractive to the phthisiotherapist. Herein lies one of its greatest dangers—that of starting or continuing pneumoperitoneum when some other procedure might offer greater benefits. Pneumoperitoneum is often a definitive collapse measure in itself; in other instances it is useful to prepare the patient for some other procedure such as thoracoplasty or even pneumothorax. At this Sanatorium the combination of pneumoperitoneum with phrenic nerve paralysis is used sparingly because of the fear that irreparable damage to the diaphragm might result. The phrenic nerve interruption has assumed a minor role as a collapse measure largely because of the incidence of patients whose diaphragmatic motion is permanently impaired. For this reason the procedure is rarely

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used in those who are at all liable to need thoracoplasty at some future date. This policy reflects the attitude of the thoracic surgeons at the University of Virginia Hospital, who believe that a poorly mobile diaphragm interferes with the raising of sputum post-operatively and that with resulting stagnation of secretions spread is an increased danger.

Bronchoscopies, which have more than doubled in use in the past five years, are carried out at the Sanatorium by members of the Thoracic Surgery Department of the University of Virginia. The important role of bronchial disease in the course of tuberculosis is receiving increased emphasis and the availability of streptomycin has resulted in more frequent bronchoscopies in order to study the response of tuberculous bronchitis to this agent.

TABLE I

| PROCEDURES | '44 | '45 | '46 | '47 | '48 | '49 | '49– |
|---|---|---|---|---|---|---|---|
| PNEUMOTHORAX | | | | | | | |
| Unilateral | 100 | 97 | 82 | 75 | 75 | 71 | 26 |
| Bilateral | 11 | 11 | 5 | 11 | 4 | 0 | 0 |
| PHRENIC NERVE INTERRUPTION | | | | | | | |
| Temporary | 42 | 31 | 24 | 16 | 19 | 23 | 5 |
| Permanent | 4 | 1 | 1 | 0 | 1 | 0 | 0 |
| PNEUMONOLYSIS | | | | | | | |
| Closed | 42 | 38 | 42 | 21 | 25 | 19 | 11 |

Tables 1 and 2 present the complete figures for the surgical measures discussed in the stated span of time. There were no extrapleural pneumothoraces and only one open pneumonolysis was carried out. There were eleven patients discharged in 1944 who had bilateral pneumothorax inductions, whereas there

TABLE II

| PROCEDURES | '44 | '45 | '46 | '47 | 48 | '49 | '49– |
|---|---|---|---|---|---|---|---|
| THORACOPLASTIES (all stages) | 40 | 27 | 24 | 31 | 46 | 42 | 20 |
| PNEUMOPERITONEUM | 0 | 0 | 0 | 1 | 11 | 29 | 39 |
| PNEUMONECTOMY | 0 | 0 | 0 | 1 | 0 | 4 | 0 |
| LOBECTOMY | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| BRONCHOSCOPIES | 47 | 40 | 22 | 50 | 52 | 99 | 49 |

were none discharged in 1949. At present there is only one patient in the Sanatorium with bilateral pneumothorax. This is a young woman who developed a small thin-walled cavity in the right lung after having had left pneumothorax for several months. Although such patients are often given pneumoperitoneum and pneumothorax, it was decided that bilateral pneumothorax was the procedure of choice and would offer her greater benefits.

## SUMMARY

I. Tables and graphs have been presented to indicate certain changing trends in the collapse therapy of tuberculosis.

II. The incidence of tuberculous empyema has been decreased from 15 per cent in 1938 to less than 1 per cent in 1949. This decrease has resulted from conservative selection of pneumothorax cases as well as a definite inclination to discontinue refills in the presence of certain complications which were listed.

III. There is a definite trend in treating tuberculosis for an increased use of primary thoracoplasties in properly selected cases. Our graphs do not show this so forcefully for the last two years of the report, due to the inability to get the necessary hospitalization facilities for operation on these cases.

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## New Books.

The following are among new books received recently at the Tompkins-McCaw Library of the Medical College of Virginia. These are available to our readers under usual library rules:

Alpers—Clinical neurology. 2nd edition, 1950.
Annual review of physiology. Vol. 13, 1951.
Association for research in nervous and mental diseases—Multiple sclerosis and the demyelinating diseases. Vol. 28, 1950.
Conn, ed.—Current therapy. 1951.
Davidson—The biochemistry of the nucleic acids.
Delbruch—Viruses.
Ham—Histology.
Harris & Kujawski—Annotated bibliography of vitamin E. 1940-1950.
Hyman—The invertebrates. Vol. II, 1951.
Lilly & Co.—De re medica. 3rd edition, 1951.
Meredith—The science of health. 2nd edition, 1951.
Myerson—Speaking of man.
Pohl—Cerebral palsy.
Snyder—Principles of heredity. 4th edition, 1951.
Woodham-Smith—Florence Nightingale, 1820-1910.
1950-52 Yearbook American College of Surgeons.
1950 Yearbook of neurology, psychiatry and neurosurgery.

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# SOME ASPECTS OF HUMAN INFERTILITY*

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In discussing human infertility we must first of all state carefully what we mean by the term. The word sterility too often is used to mean lowered fertility and not true sterility. By definition, sterility means, in a human reproductive sense, the complete inability to impregnate or conceive, and is most often due to such gross factors as congenital absence of the vagina, tubes or vasa deferentia, atrophic testes or ovaries, or other congenital omissions or acquired diseased states. Infertility, on the other hand, is the relative inability, in a designated time interval, to permit the complementary responses of the reproductive process in the male and female to attain the end process of reproduction—successful pregnancy.

Infertility is usually considered under two headings: Primary infertility when conception has not occurred after a satisfactorily long time interval of marital life without the use of contraceptives; secondary infertility, when a previous pregnancy occurred but no subsequent desired pregnancy has followed.

In general, and our present statistics are based on this, the criterion of a satisfactorily long interval of marital life without a pregnancy is three years. This concept will surely be modified since it has been almost universal experience that much valuable time is lost waiting for three years before considering a couple infertile and in need of help. Statistically, it appears that about four months is the usual time necessary for normal married couples to obtain a pregnancy, and, for purposes of this author, six months or longer of fruitless effort constitutes relative infertility. The author's own experience in this matter illustrates the change in the concept of the necessary time element, because, when he first became interested in the infertility problem, he considered five years as the acceptable time period. Help is now offered after six months.

It is estimated that about 12 per cent of married couples suffer from involuntary infertility in the United States. That approximates 3,000,000 couples and is no inconsiderable portion of our population. There are increasing numbers of these couples coming to the doctor for help and more will come when the public realizes how much can sometimes be done to overcome relative infertility. The public already recognizes the damage both to the individuals concerned and to the marriage itself by frustrated and fruitless attempts for pregnancy.

It is a general belief that an infertile marriage is due to the woman's relative sterility. Throughout the field of gynecologists interested in infertility, however, a simple ratio seems to hold quite true. In one-third of the cases the fault can be found in the female partner; in one-third of the cases the fault can be found in the male partner; and in the final third of the cases, no definite cause can be found and this group is therefore attributed to the union. It is only recently that the male responsibility has received full recognition. It is difficult to find a single factor which, when corrected, results, in a solution to the infertility problem for any given couple. It is equally difficult to classify the various causes of relative infertility, but most authors feel that the following are the best groupings for classification: Medical factors, surgical factors, endocrine factors, sexual disturbances, and congenital factors.

Medical factors are sometimes more important than one might guess. Dietary deficiencies do exist in this country, even though the dietary regimen seems adequate. These are usually vitamin and mineral deficiencies. Various anemias, emotional states, excessive use of tobacco, alcohol, or drugs, when corrected, occasionally have been the only factors altered to convert relative infertility into pregnancy. It has been shown that little over 20 per cent of male tubercular patients have normal sperm studies, and that under 40 per cent of schizophrenics, feebleminded, and severe alcoholics have normal sperm studies.

Surgical factors have received much attention in this day of aggressive surgery—perhaps too much attention too early in the care of these patients. These factors are legion in the female, and rarely treated in the male. They may be anything from a vaginal atresia, inflammation of Bartholin's, Skene's, or

*Read before the Southwestern Virginia Medical Society at Abingdon, Va., May 4, 1950.

Nabothian glands, cervical stenosis, various flexions of the uterus, and so forth, all the way to afflictions of the uterus, tubes, or ovaries in the female. They are practically limited in the male to the occasional epididymo-vasostomy. The great majority of infertile cases will be found in this surgical group.

Endocrine factors play a minor part in the majority of cases of infertility, as attested to by the large literature decrying the promiscuous use of the various hormones generally available. As an example of this type of criticism Dr. I. C. Rubin is quoted, "Failure to reckon with basic sex hygiene, often the only defect, instead of resorting to hypodermic injections is responsible for many instances of needless prolongation of sterility. . . . Resort to endocrine 'therapy' at once without a thorough and systematic physical examination of the two married partners is altogether too common. . . . Patients who receive repeated hormonal injections although their sterility is due to tubal obstructions are not infrequent. The same may be said for other causal factors of sterility which can be determined if sought for before resorting to hormonal injections."

Follicular phase defects occur in about a fifth of the cases falling into this group, and luteal phase defects in about 70 per cent.

Anovulatory cycles comprise the majority of the follicular phase defects, and inadequate secretory changes in the endometrium make up the majority of the luteal phase defects.

The exact mechanism of the role of the thyroid in fertility is far from clear, yet it is a fact that the majority of infertile men and women have a low BMR. In the endocrine group thyroid medication is the thing with the greatest favorable effect in the treatment of infertility. To the best of our present day knowledge, thyroid seems to prolong the life of the corpus luteum and intensifies its physiologic effect on the endometrium. As pertains to infertility the diagnosis of thyroid deficiency is a clinical and not a laboratory responsibility. In actual practice, the most important diagnostic criterion is the response to thyroid therapy.

The pituitary may well be the site of weakness or deficiency in most of the cases in the endocrine group, and we can but look to the future with hope that the various known pituitary factors may soon be purified or synthesized so that they may be employed in this problem. As of today, that happy state does not exist. In general, from the therapeutic standpoint, only those gross endocrine conditions that are amenable to operation have much prospect of restoring the individual to normal.

Sexual disturbances are frequently mixed up with psychological factors, which relationship is well borne out in the not infrequent case of frigidity and/or dyspareunia which responds so well to psychotherapy. Impotence on the one hand, and sexual over-indulgence on the other comprise the majority of this group.

Congenital factors are numerous in possibility, but not common in practice. Many of them, such as developmental failures, result in absolute sterility, but there are others modifiable sufficiently to permit fulfillment of procreative function. Phimosis, hypospadius, and epispadius are of definite clinical significance because they may result in the deposition of semen in an unfavorable site for conception. Congenital urethral micro-meatus may lead to pain causing withdrawal before insemination. Congenital hernia or acquired varicocele occasionally interfere with the circulation of the testes. Undescended testes rarely produce adequate sperm.

There is no real shortcut to a thorough investigation of the infertile couple, because most cases involve more than just one causative factor. In order to make a workable diagnosis and institute therapy with any hope for a good result one must omit nothing and not stop the investigation if one or several factors are quickly discovered. A routine investigation includes both marital partners. A complete and very detailed history and physical examination initiates the study. This is followed by complete laboratory study of both husband and wife which should include sedimentation rate, BMR, blood cholesterol. The wife must be further studied by vaginal smears for hormonal effect, tubal insufflation and/or hysterosalpingography, endometrial biopsy, post-coital examinations of cervical and vaginal secretions, studies of the basal temperature curves, and examination under anesthesia. Occasionally, hormone assays will be necessary. The further study of the male consists of repeated semen studies and rarely in testicular biopsies when semen studies direct it. Daily vaginal smears for hormonal effects can not be done by the occasional student of infertility because of the high degree of technical knowledge demanded. Similarly, bio-assays must be run by the specialists

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in endocrinology with adequate laboratory facilities.

Tubal disease is one of the most frequently encountered causes of infertility or sterility. There are several factors which must be considered when a tubal patency study is to be done. It is known that viable endometrium can be transplanted in the later days of the menstrual cycle, and that in the early phase or proliferation this is not so. Therefore, the insufflation should be timed in the first half of the menstrual cycle. Most of the morbidity following tubal insufflation stems from a flare-up of a genital tract infection, which places a responsibility on the gynecologist for an accurate history and exact interpretation of his physical findings before he performs the test. Similarly a pregnancy is a contraindication which must be ruled out—whether a normally implanted pregnancy or an ectopically placed one. General constitutional disease or any pelvic neoplasms are also contraindications. A simplified Rubin's tests in which no manometric readings can be made is useless and dangerous. There is much general opposition to the use of air for the test since in the early days air embolism occurred, and air peritoneal shock in various degrees of severity is frequently seen today. Carbon dioxide is a far safer gas to use.

The patient's subjective complaints during the test are often quite instructive:

(1) Bilateral lower quadrant pain with steady progressive rise in pressure usually means closure of both fimbriated ends.

(2) Bilateral pain with high but steady pressure usually means bilateral narrowing of the tubes near the fimbriae.

(3) Unilateral pain with slightly elevated pressure means unilateral closure at the fimbria.

(4) Midline pain with slightly rising pressure means bilateral closure at the proximal ends of the tubes, or tubal spasm. When this complaint is made, a second test at a later date may be entirely normal. Whenever a tubal gas insufflation test is not entirely normal, salpingography is indicated, and statistically seems to offer a decided therapeutic advantage to the patient. If the radiopaque medium does not pass through the tubes and pool in the pelvis, it does show the site of tubal blocking and may offer the patient an excellent chance for pregnancy after operation. It may also tell the sad story that surgery will probably not help and thus save the patient an ill-advised operation.

Whereas tubal insufflation and the investigation incident thereto disclose the mechanical obstructions to pregnancy, the greatest single test for hormonal function is the endometrial biopsy. Some authors advocate this biopsy on the first day of menstruation; others prefer a 1-3 day premenstrual biopsy. This essayist discounts the possibility of ruining an early pregnancy by premenstrual biopsy on the grounds that most of these patients are highly infertile or they would not be voluntarily seeking help, and the possibility can be obviated by instructing the patient to abstain from intercourse without contraception during the entire cycle in which endometrial biopsy is contemplated. Endometrial biopsy is an office procedure, in which no anesthesia is needed. The author uses a Novak curet with very satisfactory results. If the tissue is taken from the fundus rather than from the lower segment a better specimen is obtained and the procedure is less painful. Fundal endometrium shows more clearly the effects or lack of effects of progesterone, and it is these effects which explain the fact of ovulation in that cycle. The progesterone effect depends upon the duration and the amount of the steriod acting and on the sensitivity of the endometrium to it. Therefore, a repetition of the biopsy may show differing degrees of response, thereby obviating the necessity for progesterone therapy. With an accurate menstrual history covering a number of successive cycles, it is possible to date the endometrial biopsy from the microscopic study, and thereby more closely identify the time of ovulation—which is one of the most important rewards of suction endometrial curettage. If ovulation is proved by the biopsy, then it is highly important to prescribe intercourse at or about the time of ovulation, as this is the optimal time for fertilization.

Basal temperature charts are quite instructive as to the time of ovulation, but their primary purpose is to evaluate the effect of progesterone, and the luteal phase of the cycle. They serve also as a check on the patient's intercourse habits and serve as a guide to the timing of the Huhner test. Furthermore, basal temperature charts frequently serve to maintain the patient's interest in a study which by it's very nature must be drawn out.

Post-coital examination of the cervical and vagi-

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nal secretions—commonly called the Huhner test—is of inestimable value in determining the reaction of the sperm to the new environment. The presence of living spermatozoa on the cervix denotes a favorable medium for their survival. If only dead sperm are found, repeated semen studies on the male are in order and if these reveal living sperm it is evident that something in the vagino-cervical environment killed the sperm. Soda douches will frequently alter the pH of the vault to more favorable values. Similar studies of the endometrial cavity can easily be carried out, thus giving valuable information of the environment at that much higher level. In the search to date, and then to forecast the time of ovulation, the Huhner test also is useful. The mucous plug in the cervix in the proliferative phase of the cycle is thick, and tenacious, and serves quite often as an effective barrier to the passage of sperm. At the time of ovulation a change in the character of this mucous takes place in which a liquefaction occurs. This change is beneficial to the passage of sperm, and can be discovered by experience with the test.

Whenever there is doubt or a suggestion of a pelvic surgical lesion as the cause of infertility, an examination under anesthesia should be done prior to the surgery. A considerable amount of information may be gained thereby, and frequently the "cyst" or "adhesion" suspected at routine examination is found non-existent.

The further detailed study of the male marital partner is usually very simply carried out, since semen studies usually suffice. In many cases the Huhner test on the wife will give a pretty complete picture of the seminal contents. Direct sperm studies require determination of the seminal volume, viscosity, degree of autoliquefaction on standing, total sperm count, number of immature and abnormal forms, motility, and pH. Masturbated specimens and condom specimens are used occasionally but coitus interruptus specimens are considered to be more nearly physiologic by most students in this field.

In the event of azoospermia—no sperm are found at all—then a testicular biopsy is in order. If there is a history of gonorrhea, the obstruction will probably be found in the vas. If there is no such history and there are no findings of epididymitis, the azoospermia may be the result of a mumps orchitis in which case the testes will be atrophic and soft. It may be hormonal due to lack of gonadotrophic hormone of the pituitary. It may even be post-traumatic with scar formation in the urethra which causes the semen to flow into the bladder.

The treatment for the various findings uncovered by the above discussed routine may be hopeful or hopeless. In the case of the male with oligo-spermia, occasionally satisfactory results can be gotten by altering his habits of work, play, and rest, by increasing his nutritional intake, by courses of pituitary extracts. If azoospermia is due to vasal stricture with obstruction near the epididymis an anastomosis between the lower vas and the epididymis can be done, but with very equivocal results. If the testicular biopsy reveals germinal cell disintegration, then there are no substances now available which will help. The outlook for the infertile male in general is not good in the light of our present knowledge. And approximately one-third of the infertile couples therefore are faced with this relatively hopeless situation. X-radiation of the testes has not given good results, although the use of a cervical cap in the manner of an artificial insemination has occasionally ended in a happy result of pregnancy. One author reports 37 per cent favorable results in couples the male member of which had a sperm count of 60,000,000 or less. The use of the cervical cap is logical as it promotes continued motility by preventing dilution and the acid effect of the vaginal secretions.

At this point we might discuss hyaluronidase, a substance normally present in semen. It is said to be capable of dispersing the cells of the corona which may surround the newly ovulated ovum. Perhaps the future holds more hope for usefulness of hyaluronidase, but for the present most other authors' experience with it parallels this writer's lack of positive results, so much so that the substance has been withdrawn from distribution even for experimental infertility trials. Yet, in fairness to hyaluronidase, it should be noted that its property of an active dispersing effect is being utilized favorably in injectable solutions.

In women the congenital absence of vagina may be overcome by the plastic construction of a vagina, provided there is continuity of the generative tract above. The absence of tubes, though rare, can be overcome by implanting the ovary into the uterus. The absence of a uterus is insurmountable. Vaginal

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septa can be removed. Cervical atresia can be treated variously by dilatations, or by posterior discission of the cervix. Endocervicitis should be cauterized lightly. Severe endocervicitis may require conization, but it then becomes imperative that future dilatations be done repeatedly lest cicatrical stenosis ensue.

One of the most common findings in infertile women is pelvic inflammatory disease, and its treatment often adds additional hazards to conception. Puerperal salpingitis affects the outside of the tubes primarily and produces pelvic adhesions, occasionally causing a hydrosalpinx by the plastic closing of the fimbria. These offer some hope for success by opening the fimbriae, although in practice this type of plastic operation seldom is effective. Tuberculous salpingitis affects both the inside and the outside of the tube and in view of the nature of the disease on the entire patient either complete rest or radical and sterilizing surgery should be done. Gonorrheal salpingitis, which is the commonest form encountered, affects primarily the inside of the tube and thus defeats any plastic procedure on the tube. Endometritis formerly was considered a cause of sterility, but with more and more conservative treatment of this entity in the younger women, it is being found that endometritis is not in itself a contraindication to pregnancy. At the present time the author has one case of endometritis which was treated conservatively and is now six months pregnant. There is no doubt but that patients with endometritis are less apt to become pregnant than normal women, but the relationship is not understood.

Simple leiomyomata may prevent gestation due to a mechanical obstruction, and their removal may be necessary. There is some evidence today that myomata in some way influence hormonal dysfunction and this too is an indication for their removal in the qualified infertility patient. Endometrial polypi interfere with pregnancy and, unless they bleed, they are frequently only found when a thorough D. & C. is done after several spontaneous abortions have occurred. Simple follical cysts of the ovaries and corpus luteum cysts rarely need treatment, but any persistent cyst that produces symptoms should be explored. Endometrial cysts frequently can be enucleated, and germinal inclusion cysts can be excised. Cystadenomata and dermoids should be removed. Occasionally, very rarely in fact, the feminizing granulosa cell tumor will be found and should be removed, as should the masculinizing tumor, the arrhenoblastoma. Struma ovarii, the thyroid tumor of the ovary, rarely comes for sterility study but rather for the primary complaint. At any rate this tumor should be removed.

In the above general survey of treatment no mention has been made of endocrine therapy. There is a widespread general tendency to over emphasize endocrine factors of sterility in the female at the expense of equally or more important etiologic factors. Inefficacious endocrine therapy in sterility is consequent to a failure to realize that sterility may be the result of other factors in both the male and the female. Endocrine therapy is most commonly used when a clinical diagnosis of hypoplasia of the uterus is made. In the majority of cases, however, that particular uterus in that particular patient is normal, just as some adults have smaller noses and hands than others. Endocrines are also widely given for menstrual abnormalities, usually without beneficial effect so far as conception is concerned. It is well known that suppressed menstruation is not conducive to fertility and that women who have habitually delayed periods are relatively infertile. Therefore, their chances for conception are poorer. The injudicious use of hormones has not achieved good results in these cases, but there is hope now that a better method of treatment is at hand. It is radiation of the ovaries. So far, no hormonal therapy has equaled the results of fractional x-ray treatment in this group of menstrual irregularity cases. Today's hormones can not and do not induce ovulation, but fractional x-ray therapy produces a change in the ovary that does bring about ovulation in subsequent cycles often. With so much interest today centered on radiation effects of one sort or another it is encouraging to report that there are now some third generation offspring of irradiated women and they do not show any deleterious effects from the grandmother's irradiation.

Artificial insemination certainly must be considered in a great many of these cases when a pregnancy does not result from intense and prolonged treatment of all the factors which an infertility study may reveal in both partners. If the husband's semen placed in direct contact with the cervix by means of a cervical cap filled with semen on repeated occasions during the optimal time for fertilization over

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a period of six months fails to achieve a pregnancy, and if the couple are psychologically receptive to the idea, then artificial insemination from an unknown donor is well worth the effort. Other indications for suggesting artificial insemination are to be found in those couples in which intravaginal coitus is impossible because of mechanical factors such as vaginismus, impotence, tumors, or just plain obesity. Occasionally one encounters a couple very desirous of children and yet afraid for a pregnancy to occur lest hereditary defects—usually mental—known to exist in the husband's family might make such pregnancy ill-advised and the outcome unfortunate. In this small group an unrelated donor is absolutely necessary.

Artificial insemination is an office procedure and does not require any special equipment. The usual method is the intravaginal one, in which the specimen of semen is placed about the cervix under direct vision of the unlubricated speculum, the speculum withdrawn slowly, and the patient kept lying down for half an hour. Another quite common procedure is that of injecting semen into the first centimeter of the cervical canal in an attempt to wash away some of the endocervical mucus. Any higher injection is fraught with various dangers and should not be done.

When an unknown donor is used, there are apt to be many possible legal complications subsequently, according to theory, but in actual practice this rarely develops. The occasional exception we see serves to prove the rule. Actually, when success has come, by the time the patient reaches term the woman, the husband, and the doctor have to think twice to remember that the pregnancy is physically not the husband's for psychically it has become his. Nevertheless, one must know his patients very well indeed before artificial insemination from an unknown donor is suggested and if there is the slightest balking on the part of either the husband or the wife that is sufficient warning to the physician to drop the matter completely.

What, then, are the results of therapy instituted after a complete infertility study on both marital partners?

There is universal agreement that treatment of male infertility is rarely successful. When the cause is a deficiency of sperm, occasionally a favorable result follows repeated courses of androgens or pituitary extracts—but this is rare. When the cause is post-gonorrheal stricture of the vas, and epididymovasostomy is done, a favorable result is also quite rare. When the cause is complete azoospermia and there is no obstruction in the vas and testicular biopsy reveals no germinal generation, all treatment is hopeless.

As is more often the case than not, and the complete study fails to disclose any single cause for the infertility, the outlook is usually quite good. An investigation into the actual coital practices of the couple may reveal the habit of immediate post-coital urination or douching. When this is discontinued, pregnancy often follows. When the pH of the vault is less than 6.5, soda douching often is all that is needed. A change in the activity pattern of the couple, with emphasis on more rest and wider range of foods frequently gives the desired result. It is axiomatic that before any specific therapy is instituted any aberration from normal general health must be corrected, first, especially any of the anemias. Infertility frequently leads to psychological disturbances and the modification of these into a more acceptable frame of mind undoubtedly helps. It cannot be proven, but over-anxiety about and desire for a pregnancy seems to inhibit some couples from success. Perhaps the therapy which universally gives the best results is the use of thyroid extract in combination with vitamin E. This, the author believes, is one of the musts in the treatment of every case, and the thyroid therapy should be carried almost to the point of maximal tolerance.

Surgery in general offers only a modicum of hope for these patients unless it be the extirpation of a mechanical factor or of an hormone producing tumor. Vaginal plastic operations may be necessary for intercourse, and cervical dilating procedures may seem indicated. The results of tubal plastic procedures are quite discouraging. Plastic procedures on the fimbria notoriously are failures, but plastic repair or reimplantation of the cornual ends of the tubes is successful in about 50 per cent of the cases in which it is done. But obstructions at the cornual end with patency elsewhere are very seldom seen. The most favorable single surgical procedure is suspension of the uterus and this is generally agreed upon. Even in those cases with known retroversions from childhood, a suspension certainly shortens the period of infertility, other factors being normal.

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Percentages can be given for the success of artificial insemination in apparently fertile women. Over 50 per cent of such women can conceive within the first five months if insemination is carried out several times each month during the optimal time for fertilization. Similar percentages are reported for the success of the cervical cap treatment with the husband's semen when the husband suffers from a low sperm count. Over 35 per cent of these cases respond favorably.

In conclusion, then, when a physician undertakes a sterility study he must be prepared to spend a great deal of time, and to put a great deal of "the art of medicine" into the study. He must not be dismayed by lack of success, and he must concentrate every effort upon the myriad minor variations from the normal in both marital partners.

Any couple which has tried for a pregnancy over six months without success should be offered the benefit of a sterility study. The greatest reward will come from the judicious use of thyroid and vitamin E, from the physical and especially psychological benefit of a positive tubal insufflation test, and, when indicated, by a uterine suspension. If these methods fail in the hands of the physician, then it certainly is time to seek the help of a gynecologist. There is no reward more satisfying to all concerned than the successful solution of the problem of the unwanted barren marriage.

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**New Blood Vessel Bank.**

Doctors have established a new type of "bank" which collects and preserves human blood vessels. The first bank has been established at New York Hospital, Cornell Medical Center and Bellevue Hospital, part of the New York University-Bellevue Medical Center. Desirability of such a bank became apparent with the development of new techniques in cardiovascular surgery in which normal blood vessel grafts from deceased persons are transplanted to patients with diseased or abnormal vessels.

The blood vessel bank, its function and its contribution to cardiovascular surgery are described by a group of New York surgeons in the March 24th *Journal of the American Medical Association*. The surgeons are Drs. Edward B. C. Keefer, William DeW. Andrus, Frank Glenn, George H. Humphreys, II, Jere W. Lord, Jr., Wallace B. Murphy, and Arthur S. Touroff.

The New York bank draws its supply from all available New York hospitals.

A large number of hospitals are necessary to provide donor material in sufficient quantity for such a bank. There is nearly always difficulty in obtaining permission for autopsy and, in addition, only a small number of the autopsies actually performed provide suitable donor material. For example, from May 14, 1949, to May 14, 1950, there were only 28 autopsies from which usable donor grafts could be taken, or 6.2 per cent of all the autopsies done. It also is desirable to have a choice of different sized grafts because of the individual variations in the calibre of the vessels and, despite the shortage of material, a central storage depot makes this choice possible. A constant race against time exists in maintaining an adequate supply of donor material. A graft must be taken as soon as possible, preferably not later than six hours after death of the donor. This demands fast action by the house staff in obtaining permission for complete autopsy and clearing the permit through the hospital administration. The shortness of storage time of the grafts (from four to six weeks) also means the supply must be constantly replenished.

At the New York bank, the graft is kept in a nutrient solution under refrigeration. Another method of storage by deep freeze was also discussed in the article. Each method has certain advantages but neither has been proved sufficiently superior to be the procedure of choice. Research is being carried on to improve storage, thus lengthening its maximum time limit past the 4 to 6 weeks' mark.

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# SOME NEW CONCEPTS ON THE TREATMENT OF BLEEDING IN THE THIRD TRIMESTER OF PREGNANCY*

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Hemorrhage, either directly or indirectly, is the most common cause of maternal death. Preferably every pregnant woman should have her blood typed and a Rh determination done at the time she has her blood drawn for a serology test.

In the last trimester of pregnancy bleeding is most apt to be caused by placenta previa or premature separation of the normally implanted placenta. The latter is more dangerous.

If a patient is seen who states she has had bleeding in the last trimester of pregnancy she should never be examined rectally and should not be examined vaginally in the home or office. She should be typed, cross-matched and have a Rh determination if this has not already been done. Naturally she should have a history, physical examination, blood count, hemoglobin and urine examination.

X-ray examination may help diagnose placenta previa but has not been able to diagnose premature separation of the placenta. For the identification of a placenta a soft tissue technique has been most successful. If further studies are needed cystographic ones are performed. Stevenson[1] states presence or absence of placenta previa was achieved in 98.1 per cent of 474 women. The presence of more than one fetus complicates the identification of the placenta or placentae.

## PREMATURE SEPARATION OF THE NORMALLY IMPLANTED PLACENTA

*Incidence:* 1 in 85 deliveries at the Boston Lying-In Hospital.[2]

Non-toxic: 1 in 133 non-toxic deliveries (276 cases).

Toxic: 1 in 18.3 cases showing some degree of albuminuria and/or hypertension (200 cases).

Multiparas about 80 per cent.

*Treatment:* Depends upon severity of symptoms, the patient's general condition, whether or not she is in labor, and, most important, the degree of cervical dilatation. The tendency to treat these cases conservatively is growing. Series with few cesarean sections have been reported in which almost all patients recovered. Therefore, in some patients at least a uterus which showed utero-placental apoplexy can be retained. Greenhill[3] states "In abruptio placentae with either external or internal profuse bleeding, as determined by rapid increase in the size of the uterus cesarean section is indicated regardless of the baby's viability. When the uterus fails to contract despite massage and drugs it has to be removed, but patience must be exercised". See idea of Boston Lying-In group below.

Conservative therapy can be carried out by rupturing the membranes with or without use of Willett forceps.

In every case of uterine bleeding regardless of the cause blood loss should be replaced by transfusion as soon as possible. It is of great importance to prevent unnecessary bleeding. In most cases of serious bleeding, not only should at least an equal amount of blood be transfused but either penicillin or one of the sulfonamides should be given.

*Results: At Emory University*—twenty year study—293 cases.

Only 3 cesarean sections were done and those for other causes. Membranes were ruptured. 14 mothers died—4.8 per cent (3 had eclampsia and 3 severe hypertension). There were 10 autopsies. No case of Couvelaire uteri were seen in either the oprated or autopsied group.

*Fetal Mortality*—33 less than 1,500 grams.

Of Premature 99 and Term 92 (191).

| PREMATURE | | | |
|---|---|---|---|
| Dead on admission | 54 | Whole group | 60.2% |
| Died after admission | 10 | severe cases | 82.8% |
| Born alive | 35 | mod. cases | 55.2% |
| | | mild cases | 27.7% |

| MATURE | | | | |
|---|---|---|---|---|
| Dead on admission | 40 | Immature | 33 | |
| Died after admission | 11 | Dead on admission | 94 | 127 55.1% |
| Born alive | 41 | | | |
| | | Died after admission | 21 | 9% |

*Read before the Southwest Virginia Medical Society at Abingdon, May 4, 1950.

At Boston Lying-In Hospital[2]—476 cases.

Treatment was conservative in many of the non-toxic group, the majority of the moderately toxic and in all of the severely toxic group. None of the patients died from post-partum hemorrhage due to uterine atony. Cesarean section, according to this group, should be restricted to those patients who are not in labor, and in whom a vaginal examination reveals a cervix which is not effaced or dilated and in whom there is no evidence of fetal distress.

*Mortality*—Non-toxic separations: 1 per cent.
Toxic separations: 6 per cent.

Fetal mortality (including stillbirths and neonatal deaths) in non-toxic group 34 per cent.

Fetal mortality (including stillbirths and neonatal deaths) in toxic group 52 per cent.

In some patients there is an upset in the clotting mechanism of the circulating blood. If the patient arrives in shock, blood should be replaced, membranes ruptured and investigation of clotting mechanism done. Specific replacement (vitamin K, fibrinogen, etc.) should be administered. At the end of 2-4 hours if labor has not begun and the patient has recovered from shock, then abdominal hysterotomy appears to be the procedure of choice.

At Sloan Hospital, New York,[5] in a study of cesarean sections in the years, 1942-47 "Accidental hemorrhage" was 8th on the list of indications—26 in 1,000 cesareans—no deaths—small increase over 15 year period. Fetal Mortality was 42 per cent.

## PLACENTA PREVIA

*Definition:* There is a lack of uniformity in textbooks. Greenhill and Eastman[3] have agreed on the following. Three types only will be used: Total, Partial and Low Implantation.

*Total:* Complete coverage of the cervix at time of examination regardless of amount of dilatation.

*Partial:* Partial coverage of the cervix at time of examination regardless of amount of dilatation.

*Low Implantation:* Refers to the ability to palpate the lower edge of the placenta through the cervix, at the internal os.

*Incidence:* (Mayo Clinic)[12] 1.12 per cent; 1-89 deliveries; 81 per cent in multiparas and 19 per cent in primiparas.

Mal-presentation was present in 12 per cent.

Diagnosis: X-ray visualization of the placenta has been referred to above and may be used if the patient's condition allows it. The abdominal examination may produce helpful information. Usually the presenting part does not engage satisfactorily in the superior strait of the pelvis if any appreciable degree of placenta previa is present. The high unengaged presenting part or an abnormal presentation such as transverse or oblique in the presence of ante partum bleeding is strongly suggestive of placenta previa.

If the patient is at term or has an apparently viable baby, a method of delivery may be selected as soon as the general condition of the patient permits. If the presenting part is not engaged in the pelvis, vaginal examination is apt to be particularly hazardous. It can be omitted and cesarean section done.

If the presenting part is dipping into the pelvis and delivery has been decided upon, a vaginal examination is done. The condition of the cervix is gently determined and the lower segment lateral to the cervix is palpated. When the presenting part cannot be readily felt through the tissues lateral to the cervix, it suggests the presence of placental tissue in the lower uterine segment. If the cervical canal is short and admits a finger, the region around the internal os is cautiously felt. If placental tissue is felt, then every effort is made to avoid disturbing its attachments. If the cervix is "ripe" the membranes are ruptured, but not if a total placenta previa is present.

In the event that the child seems too small to survive and if labor has not begun, an expectant attitude may be adopted. A gentle examination and inspection of the vagina and cervix may be done to eliminate the possibility of some infrequent cause of bleeding such as ruptured varices or cervical tumors but the cervical canal should not be explored. The patient should be kept in bed, in a hospital, until she delivers. Her blood must be watched and blood held ready for transfusion. When the baby is viable the bag of waters may be ruptured or cesarean section performed.

Naturally some patients will have premature spontaneous labor. Some will have recurrent hemorrhage which may influence the decision on termination, or there may be other complications needing termination. Expectant treatment can be used in 20-25 per cent of patients.

*Some arguments for expectant treatment are:*

1. Rarity of severe initial hemorrhage.
2. Occurrence of sharp but not severe initial

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hemorrhage at 30-34 weeks without further blood loss.

3. Despite a typical history the bleeding may not be due to placenta previa.
4. In none of the women treated expectantly by Mills[6] was life endangered.
5. In a study of 50 maternal deaths from placenta previa by Gordon and Rosenthal,[7] antepartum hemorrhage caused only one death and that patient's atypical symptoms suggested an unusual degree of abruptio placenta associated with placenta previa.
6. Johnson[8] is still waiting for a report of a case of fatal hemorrhage in a patient with placenta previa who had had no cervical manipulation nor any attempt at manual removal of the remaining placental tissue during the third stage of labor.

When it has been decided that termination of pregnancy is indicated, either cesarean section or rupture of the membranes should be done. Willett or other type of forceps may be applied to the baby's head to produce traction if necessary. The use of a bag and Braxton-Hicks version has no place in the modern management of placenta previa according to Eastman.[9] Vaginal packing is of no value except to conceal hemorrhage.

The method of delivery depends almost wholly on the status of the cervix and the type of previa. For partial placenta previa with the membranes intact the simplest and best treatment is rupture of the membranes provided the cervix is "ripe".

In total placenta previa and in partial placenta previa in which extensive bleeding has already occurred cesarean section is indicated.

When a patient may be treated either by cesarean section or rupture of the membranes, an X-ray should always be taken to rule out a monstrosity. In Paalman and Hunt's[12] series the frequency of monstrosities was 5 per cent.

## COMMENTS ON TRENDS AND SOME RESULTS

Fifteen years ago at Sloans Hospital for Women,[5] 20 per cent of cases of placenta previa had cesarean sections. Between 1942-1947, 69 per cent of such cases had this operation. There were 79 sections in 1,000 for this period. The only mortality in the total series was not related to the operation. Fetal mortality was 12.7 per cent. Any case in which there was active bleeding which could not be controlled by simple vaginal procedures had a section.

*Mills:* Maximum period of expectant treatment in 16 patients of 100 studied was 8 weeks. Average was 17 days. No mother died. Fetal loss was 16.5 per cent. Prematurity was the chief factor improved. Fetal loss was 15 per cent in cases in which this treatment was practiced and 75 per cent in those in which it was neglected.

*Macafee:*[10]

| | *Cases* | *Maternal Mortality* | *Infant Mortality* |
|---|---|---|---|
| Period 1937-1944 | 174 | 0.57% | 23.5% |
| 1932-1936 | 76 | 2.6% | 51.3% |

Average weight in his last 47 cases was 6 lb. 12 oz. with a fetal mortality of 6 per cent.

Average weight in his first 47 cases was 5 lb. 2 oz. with a fetal mortality of 47 per cent.

*Williams:*[11]

105 cases. Of the 42 per cent sectioned there were no stillborn; 8 died neonatally (7 premature). Fetal mortality 18 per cent.

Maternal mortality: One case who had repeated vaginal examinations in the home and was almost exsanguinated with temperature of 101° on admission. She arrived with a cervical and vaginal pack in her. She died later of generalized infection.

41 cases were kept under observation from 2 days to 3 months in an effort to obtain a viable child.

5 babies were lost (12 per cent) in contrast to 28 per cent mortality for the whole series. One was a term baby delivered by section who died neonatally of congenital malformations; four were premature (one stillborn and 3 died neonatally). Fetal mortality for prematures (31) was 68 per cent.

## SUMMARY

1. Treatment of cases of premature separation of the normally implanted placenta is not standardized. There is a tendency to treat these cases conservatively. In some patients at least, a uterus which shows uteroplacental apoplexy can be retained.

2. Whenever possible expectant treatment should be used in a case of placenta previa if the child seems too small to survive.

3. Many more cases of placenta previa are treated by cesarean section now than formerly.

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## Pain-Relieving Agent in Childbirth.

Lacking a universal analgesic for childbirth, the trend in modern obstetrics is to fit a pain-killing drug to the patient rather than the patient to a drug, according to Dr. Curtis J. Lund of New Orleans. Writing in the (April 14th) *Journal of the American Medical Association*, Dr. Lund said that actually analgesia begins with the first prenatal visit of the mother.

Apprehension and tension make labor more painful, but "proper attention to the emotional factors in pregnancy and labor will materially reduce the need for analgesia." Both the mother and the baby must be evaluated before analgesics are administered.

"Complications of pregnancy, such as toxemia, heart disease, respiratory disease and prolonged labor, require individualized attention. Premature infants, infants of diabetic mothers and those with erythroblastosis [a hemorrhagic disease of children in which the Rh factor is involved] are very sensitive to analgesic drugs which should be withheld unless maternal complications demand them.

"The choice of method depends to a great degree on environment. This includes the skill and cooperation of obstetrician and anethetist, the quality of nursing care, as well as the physical facilities at hand. . . .

"The average physician needs to know only two or three soundly established methods of analgesia fitted to the environment. One of these methods will usually be applicable to the patient at hand."

Low spinal anesthesia, popularly called saddle-block, is a comparatively new procedure which has received much attention of late. Dr. Eakle W. Cartwright of Pasadena, Calif., writing in the same issue of the Journal, expressed the opinion that "in experienced hands" it is both safe and effective.

He reports that there were no maternal deaths under this type of anesthesia in 3,236 deliveries over a seven-year period. He added that there is no "maternal or infant morbidity attributable to this technic."

He found that resuscitation of the babies was rarely necessary after delivery and initial respiration occurred promptly—almost all babies crying lustily immediately after birth.

The success of spinal anesthesia, according to Dr. Cartwright, depends on "seasoned obstetric judgment" and "mastery of the technic of spinal injection."

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# TORSION OF THE TESTICLE

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Torsion of the testicle is in fact a torsion of the spermatic cord. It is defined as a rotation of the orchis and its appendages upon their suspending structures. Two types of torsion are recognized, the extravaginal and the intravaginal. The former is a very uncommon condition and occurs in undescended testis, or as a result of traumatic destruction or congenital absence of the tissue elements that normally bind the tunica vaginalis to the inner surface of the scrotal wall. The second, or intravaginal, is the more common type. It is characterized by rotation of the orchis, epididymis and visceral tunic on the cord.

While torsion usually occurs in the first two decades of life, cases have been reported in men over sixty years of age. It is associated with undescended testes in about one-half of the cases. Of 350 cases tabulated by Abeshouse[1] in 1936, 24 were bilateral. By 1943 only 2 additional cases had been reported.

Muschat[6], in 1932, gave an excellent description of the pathological anatomy involved in torsion of the testicle. In accord with the view of many other men, he emphasized the inability of the normally descended and attached testis to undergo rotation. In addition, he stressed the following points as essential in the production of torsion:

1. A high investment of the tunica vaginalis on the spermatic cord.
2. The complete envelopment of the testis and the epididymis by the tunica vaginalis.
3. An oblique insertion of the cremasteric fibers into the terminal segment of cord and the visceral layers of the tunica vaginalis.

These three points bear further discussion in order to gain an understanding of the mechanism of torsion. With a high investment of the tunica vaginalis there is produced an intravaginal segment of cord of variable length. The complete envelopment of the testis and epididymis by the tunica vaginalis results in a failure of the epididymis, and in turn the testis, to anchor to the posterior scrotal wall. Thus, the orchis and epididymis are contained in a serosal sac of visceral tunic that floats freely in a similar sac of parietal tunic. The oblique insertion of the cremasteric fibers into the intravaginal segment of cord and the visceral layer of tunica vaginalis allows for rotation of the visceral sac and its contents upon contraction of the cremaster.

In addition to the foregoing, a variety of anomalous conditions have been described as factors in torsion of the testicle. These include:

1. Abnormal length, laxity, or absence of the gubernaculum testis.
2. An abnormally long or absent mesorchium.
3. Failure of the descended testis to undergo inversion.
4. Development of a narrow, stalk-like common mesentery and vascular pedicle to the testicle instead of the broad, widely attached type normally found.
5. Absence of the superior and inferior ligaments connecting the testis and epididymis.
6. A very loose, roomy tunica vaginalis.
7. Elongation of the globus minor of the epididymis.
8. Failure of the testis to descend into the scrotum.

An exciting or mechanical agent is required to cause torsion in the anomalous testis. Most authoritie are agreed that sudden contraction of the cremaster muscle supplies the needed impetus for rotation. Additional exciting factors, such as muscular exertion or direct trauma, play a part. These latter are not essential, however, since many cases have developed in individuals while at rest. In some instances, the patient is awakened from a sound sleep by his initial pain.

The pathology of torsion depends directly upon the degree and duration of the condition. In partial torsion, with rapid complete untwisting, little or no tissue damage results. With prolonged torsion, there ensues vascular congestion and infarction of the testicle. This process may follow any one of four courses:

1. Untwisting and recovery, although there is usually some residual damage and fibrosis.
2. Complete atrophy and fibrosis.
3. Gangrene.
4. Suppuration, if infection is superimposed.

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Depending on the stage of the process at the time of operation, the testis may be but little altered or show marked discoloration, swelling, softening, or complete destruction.

The diagnosis of torsion of the testicle depends primarily on an awareness of the condition. If one keeps in mind the possibility of torsion, it will be found to occur more frequently than generally believed. Through June, 1943, 489 cases had been reported in the literature.

In the typical case, the onset is characterized by sudden severe pain in the affected organ. This is followed by swelling and redness of the involved side of the scrotum. Early in the condition, the epididymis can frequently be palpated out of its normal post-testicular position. The onset of torsion is usually accompanied by a mild systemic reaction. There may be pallor, nausea, vomiting, and occasionally a temperature elevation of a degree or two. The white blood cell count is rarely increased. Frequently the patient gives a history of trauma or undue exertion prior to onset.

The atypical case presents a real diagnostic problem. The pain may be mild and intermittent in character. In the undescended testis the signs and symptoms may imitate those of an acute surgical abdomen.

Physical examination will reveal an empty scrotal cavity on the side of an undescended testis. In the case of torsion of the descended organ, there is usually an elevation of the affected structure, with fullness and tenderness over the lower portion of the inguinal canal on the involved side. Depending on the duration and the degree of the torsion, there will be swelling and tenderness of the scrotal contents and wall, to such a degree in most cases that palpation of contained elements is impossible. In uncomplicated torsion, the signs and symptoms begin to abate in 48 hours. Characteristically, with the onset of gangrene, pain abates more or less completely.

Torsion must be differentiated from the following:

1. Strangulated hernia—With this disaster, one sees a more marked systemic reaction with nausea and vomiting, failure to pass flatus, and other signs of intestinal obstruction. The history of preceding hernia, or palpation of a mass in the inguinal area or scrotum, with a normal testicle present on both sides of the scrotum, is of value in the differentiation.

2. Acute epididymitis—This disease has a slower onset. There are usually signs of genito-urinary tract infection, such as urethritis, prostatitis, or inguinal adenitis. According to Prehn, elevation of the testis in acute epididymitis relieves the distress, while in torsion the pain is increased. Higher temperature elevation and white cell count are found in epididymitis.

3. Orchitis of mumps—The history, accompanying parotitis, slower onset, milder symptoms, and absence of involvement of the cord are of aid.

4. Hydrocele and spermatocele—Frequently the normal testis and epididymis are palpable. The cystic mass transilluminates light. There is often a history of previous swellings and aspirations. The pain and discomfort are more gradual in onset and much less severe. Few or no systemic reactions are noted.

5. Torsion of the appendix testis—In this condition there is usually less severe distress. The testis and epididymis are palpable and normal. Not infrequently, there is a tender, pea-size mass palpable in the vicinity of the globus major. Differentiation of this condition is important, since surgery is rarely necessary.

6. Various abdominal complaints—Differentiation of these and torsion of the undescended testicle is difficult, and diagnosis is made at the time of operation.

7. Tumor of the testis, tuberculous epididymitis, syphilis of the testis, and other similar conditions—These rarely offer difficulty in differential diagnosis.

The treatment in torsion of the testicle is prompt surgical intervention. The findings at operation determine the procedure to be carried out. According to Riba and Schmidlapp[7], surgery, if undertaken within eight hours, will reveal a viable testicle. Birdsall[2] states that in the majority of cases in which the diagnosis has been made early and the testicle found to be viable and detorsion performed, the testicle has undergone atrophy. In those cases in which normal color returns after relief of torsion, the tunica vaginalis is excised, its margins are turned back and sutured, and the orchis is anchored to the posterior scrotal wall. When the viability of the organ has been lost, orchiectomy is the only recourse. The infrequent case of recurrent, incomplete torsion should be treated surgically to forestall possible destruction of the testicle. There is a wide difference of opinion as to the wisdom of tacking the opposite testis at the

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time of relief of torsion. The fact that only 26 cases of bilateral torsion have occurred in 483 total cases would seem to indicate that such a routine procedure is not advisable.

The following is a report of twelve cases, nine of which are from the records of the Pennsylvania Hospital in Philadelphia:

*Case 1.* A fifteen-year-old colored male was admitted to the hospital with the complaint of pain in the scrotum. Five days prior to admission, following a gymnastic class at school, he developed pain in the left scrotum. The pain increased and the organ became swollen. He was seen at a local hospital and treated for epididymitis. The acute pain subsided, but the swelling persisted, and at the time of admission his pain was intermittent and much less severe. Examination showed the scrotal skin on the left to be thickened and reddened. An exquisitely tender mass filled the entire left scrotal cavity. A diagnosis of torsion of the testicle was made. At operation a complete single twist of the cord was discovered. The testis and epididymis were deep blue in color and this discoloration persisted after relief of torsion. Orchiectomy was done. The pathological report indicated hemorrhagic infarction and beginning gangrene of the orchis.

*Case 2.* An Army officer, thirty-six years old, while on duty in Germany three months prior to admission to the hospital, awakened at two o'clock in the morning with severe pain in the right testicle. The condition persisted and he was seen by a medical officer who gave him a narcotic for pain and made a diagnosis of acute epididymitis. In the next few days he was hospitalized and treated for acute epididymitis. The pain disappeared in about ten days, and he was evacuated to the United States. At the time of examination, there was a large, indurated, non-tender mass in the right scrotum. The epididymis could not be distinguished as such. It was felt that he had sustained torsion and infarction of the testicle, although a tumor or infection could not be discounted. At operation, the testis was found to be deep yellow in color, very dry, and there was no bleeding on incising the tunica albuginea. The orchis and epididymis were freed, and the cord was doubly clamped and divided. It was noted that the clamp on the proximal stump could be removed with little or no bleeding. Apparently the vessels running through the segment of cord adjacent to the testicle had been obliterated. The pathological report was dry gangrene of the testicle.

*Case 3.* A twenty-three-year-old Army sergeant developed sudden agonizing pain in the left testicle while on bivouac. He was brought to the G.U. Clinic as an emergency patient and examination was difficult because of extreme tenderness. There was no swelling or redness of the scrotum, and the testicle and epididymis were palpable as such. During the examination it was thought possible that the patient had sustained a torsion of the testicle. Gentle taxis was attempted and the organ rotated 360° to the left with immediate and complete relief of symptoms. Two days later he was taken to the operating room and the orchis exposed. A small hydrocele sac was discovered and the testis was found to be freely movable within this sac. The hydrocele was excised and the testicle sutured securely to the scrotal wall.

*Case 4.* A thirty-four-year-old white chemist, whose chief complaint was pain in the right testicle of 24 hours' duration. This came on the morning following a very active day. He noticed slight discomfort at first which became progressively worse. On admission the temperature was normal and white blood count was 9,200. The physical examination was negative except for a small right varicocele and a questionable beading of the epididymis. The right testicle was rotated so that the vas entered at its superior portion. There was no swelling, but the testicle and epididymis were exquisitely tender. The diagnosis was partial torsion of the testicle. On the following day the symptoms had subsided and the testis was palpable in normal position and relationship. The patient was discharged.

*Case 5.* A fifty-three-year-old white salesman complained of pain and swelling in the left scrotum. On the morning of the day of admission, the patient developed pain in the left testicle. This increased during the morning and he developed chills and fever. On admission the temperature was 102.4, white blood count 15,700. Physical examination revealed tense swelling in the left scrotum the size of a grapefruit. The epididymis was exquisitely tender and posterior to the mass. There was no tenderness along the spermatic cord. The diagnosis was hydrocele and left acute epididymitis. At operation there was a partially necrotic hydrocele sac containing 1,000 c.c. of bloody fluid. There was torsion of the cord. The testis was dark purple and on incision

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did not bleed. Orchiectomy was performed. The orchis was found to be gangrenous. The vas and epididymis showed acute inflammation.

*Case 6.* A thirteen-year-old white schoolboy complained of pain in the left testicle. Four months prior to admission the patient developed a severe pain in the left testicle. The pain was intermittent and subsided on bed rest. It recurred four times, in each instance associated with physical exertion. The last attack was seven days prior to admission and subsided gradually. Physical examination showed slight tenderness of the right testis and inguinal ring. The temperature was normal. A diagnosis was made of recurrent partial torsion of the right testicle. The symptoms completely subsided following admission and the patient was discharged.

*Case 7.* A thirty-two-year-old white lawyer complained of swelling of the right testicle of two weeks' duration. At the onset the swelling was associated with pain in the suprapubic area, extending upward. This lasted five to six hours and then gradually subsided. There was some nausea but no vomiting. That same day the patient noticed a lump in the right testicle. He was seen at a local hospital and told that he had acute epididymitis. The swelling increased and remained so until admission. Physical examination revealed a firm, somewhat fluctuant mass, the size of a small orange, in the right scrotum. It was slightly tender and very warm. The temperature was normal and white blood count was 10,400. At operation the cord was found to be twisted three times upon itself. The testis and epididymis were enlarged and gangrenous. Orchiectomy was performed.

*Case 8.* A thirty-nine-year-old colored mechanic complained of a swollen testicle. Four days prior to admission, while working under an automobile, he developed sudden severe left testicular pain, and the testicle became quite swollen and painful. He saw his local physician and was given "white tablets" and "green capsules". On the day prior to admission the scrotum became reddened and the swelling gradually increased. The physical examination revealed the left testicle to be firm, moderately tender, and swollen to three times its normal size. The scrotum was reddened and hot. The left vas was swollen to the size of the little finger and exquisitely tender. White blood count was 6,200. The diagnosis was acute epididymitis. At operation the epididymis was opened and much dark blood and several old clots were evacuated. The wound was closed. The patient improved and was discharged to the outpatient department. The final diagnosis was torsion of the testicle with spontaneous reduction.

*Case 9.* A white schoolboy, ten years old, complained of a swollen right testicle. Two days prior to admission he awakened with a dull aching pain in the lower pole of the right testicle. His discomfort increased on exertion and was relieved by bed rest or sitting with the right leg elevated. On the following morning he noted swelling of the testicle. His temperature was 99°. The physical examination showed the right epididymis thickened, enlarged, and acutely tender. These findings were most marked at the lower pole. The skin of the scrotum was reddened. There was questionable enlargement of the testis. The diagnosis was partial torsion of the testicle. The symptoms subsided on watchful therapy.

*Case 10.* A fifteen-year-old colored schoolboy complained of pain and swelling of the left scrotum. He developed sudden severe pain in the left scrotum while playing ball. He was seen in the out patient department and given a scrotal support, then sent to the G.U. Clinic. He was referred to the hospital from the Clinic. The left scrotum was swollen and tender. The left testis and epididymis were undistinguishable in an exquisitely tender mass which retracted upward. The vas was palpable and normal. A diagnosis was made of torsion of the testicle. At operation the testis was bluish black in color. Orchiectomy was performed. The pathological study showed hemorrhage and gangrene of the testicle.

*Case 11.* A thirteen-year-old white schoolboy complained of pain in the left groin and testicle. Two hours before admission, while swimming, he developed sudden pain, which was severe and colicky, in the lower abdomen and groin. He was seen in the Receiving Room where he vomited copiously one time. He was held for observation. The physical examination revealed excruciating pain in the left groin. There was no spasm or tenderness of the abdomen and peristalsis was hyperactive. The temperature was 98° and white blood count was 9,800. The following morning his pain had subsided. The left epididymis was found to be six times its normal size. On admission to the G.U. ward, the left testicle and epididymis were enlarged and slightly tender. The vas was felt to be normal. The white blood

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count was 13,400. At operation the cord was found to be twisted 1½ times. The testis and epididymis were blue in color and orchiectomy was performed. The pathological report was hemorrhagic infarction of the testis and epididymis.

### SUMMARY

Torsion of the testicle is discussed as to etiology, mechanism, diagnosis, and treatment. A summary of eleven cases is presented.

### CONCLUSIONS

Some anomaly of descent, investment, or attachment of the testis and spermatic cord is prerequisite to the development of torsion.

Diagnosis of the condition is facilitated by keeping it in mind in all cases of testicular or scrotal pain or swelling.

Treatment of the condition is prompt surgery, and the earlier performed, the greater the possibility of obtaining a viable organ.

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NOTE: Since this paper was prepared for publication, I have treated an additional case of torsion of the testicle. Following is a brief summary: The patient, a white male, twenty-three years of age, was admitted to St. Elizabeth's Hospital, complaining of pain in the left testicle of thirty-six hours' duration. There was no definite association with physical exertion or trauma. The physical examination was negative except for slight swelling and marked tenderness of the left scrotal contents. The patient was observed for eight hours, during which time the left testicle became progressively larger. At the time of surgery he was found to have a 90° rotation of the cord with definite vascular congestion of the testicle. Normal color; returned upon release of the torsion. The patient was also found to have patent processus vaginalis and a large hydrocele. After excision of the hydrocele and high ligation of the processus vaginalis, the testicle was tacked in place as described in preceding cases.

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## Violent and Sudden Deaths.

Only 13 per cent of the people in the United States are protected by adequate investigation of violent or sudden deaths, according to Dr. Richard Ford of Boston.

In most states, Dr. Ford points out in the April 7th *Journal of the American Medical Association,* the coroner is not required by law to be a physician nor are there adequate facilities for thorough investigation of such deaths. He estimates that 300,000 (20 per cent) of all deaths annually are from violent or obscure causes. If medical examination is not a definite part of the investigation in these cases, the true cause and manner of death in many instances may never be established.

Nonrecognition of murder is common. In New York City alone the medical examiner service discloses approximately 50 deaths annually which are due to violence not noticeable externally.

Massachusetts, Maryland and Virginia were the only three states named by Dr. Ford as being served by centralized laboratories for medicolegal investigation of deaths. These together with Maine, New Hampshire, Connecticut, Rhode Island and several cities and counties of other states comprise a total of 20,000,000 citizens served by systems in which the investigator is at least a physician.

# PREGNANCY IN A BICORNATE UTERUS COMPLICATED BY THE INCARCERATED NON-PREGNANT HORN— CASE REPORT*

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Congenital deformities of the uterus have been described from time to time for hundreds of years; however, a great deal of interest in this condition and its various phases of congenital maldevelopment was not aroused until the present century.

The purpose of this paper is to recall some of the factors concerning the recognization of the condition, some of the complications, and some of the ideas concerning management as expressed by men much more experienced with this type of obstetrics than this novice. Finally, I will relate our case which will demonstrate how much better hindsight is than foresight in this instance.

The actual occurrence of uterine abnormalities in pregnancy is apparently undetermined other than to say that it occurs much more frequently than is reported. Taylor[1] states that it occurs once in about 1,500 obstetrical and about once in about 2,000 gynecologic cases. Way[2] reported 10 cases in 3,894 deliveries, or one case in 389, and a second series[3] in which 15 were found in 1,200 routine cases, which would be one case in 78. He explains that they were looking more closely for those found in the second series. Eck, cited by Granberry[4], stated that duplicity of the genital tract is most frequently found in broadly built women of stable temperament. Falls[5] feels that pregnancy and labor in the arcuate type of bicornate uterus is relatively of frequent occurrence.

Ever[6] says that "most of the congenital malformations of the female genital tract are due in embryonic life to a lack of fusion, or an incomplete fusion of the lower halves of the two Müllerian ducts, or a failure, partial or complete, of resorption of their conglutinated surfaces. Thus a septum at any or all levels from the introitus on up through the vagina, cervix and uterine body may be found. This is due to failure of the resorption. Various types of duplex anomalies, such as uterus didelphys, are caused by lack of fusion. Both types can, and often do exist in the same patient; for example, the very frequent association of septate vagina with duplex anomalies of the uterus."

The simplest classification of these anomalies that I found was that given by Taylor[1], which is as follows:

1. Uterus arcuatus.
2. Double uterus with single cervix.
3. Septate uterus with a single or septate vagina.
4. Double uterus with a double cervix.
5. Uterus with a rudimentary horn or absence of one horn.

The recognization of this situation, aside from an easily demonstrable vaginal septum or a double cervix, almost demands that the condition be kept in mind.

The onset of the menses is on the average later than one would normally expect, Grandberry [4] stated 15 years, and some women were as late as 26 and in several they were absent. Dysmenorrhea and dyspareunia are suggestive. Some cases will have menstrual cycles that will add to the suspicion, especially where the patient has a double uterus that empties into a single or double cervix, and they may menstruate every two weeks. In this incidence the patient is menstruating alternately from the separate uteri. Repeated abortion, difficult labors, prematurity, post maturity, postpartum hemorrhage and retained placenti that the patient has encountered in previous deliveries may also aid in the diagnosis. In the case of a double uterus with pregnancy in one horn, there may be an establishment of menses that are apparently normal periods as soon as the effect of the newly formed corpus luteum becomes lessened. This incidence was reported by Green and Miller[6].

Upon examination, malformation of the external genitalia will lead you to suspect the possibility of further malformations. You may encounter a sep-

*Read before the South Piedmont Medical Society in Danville, Va., April 26, 1950.

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tum in the vagina or a double cervix. Hysterosalpinography employed in the non-pregnant patient will usually establish the true condition of the uterus.

If confronted with the pregnant uterus of the arcuate type, Falls[5] adds that often 7/8 of the uterus will be found to the right or left of the midline. In others, both sides will hypertrophy at about the same rate but will be notched at the fundus. Then one side may grow much faster and the other grow slower and may be represented at term merely as a nodule on the surface of the uterus. This nodule may be mistaken for a fibroid. He further states that the thickness of the uterine wall and lower uterine segment is less than in normal uteri. This is especially impressive by the weak character of pains so frequently seen in these cases, and by being able to palpate the fetal parts unusually clearly through the abdominal and uterine wall. The fetal heart tones show a peculiar and curious irregularity. Falls[5] relates that they may be 120 to 130 at the beginning of auscultation and rise to 150 to 170 for a quarter of a minute or more, then, without apparent cause, slow down to 100 to 110. You are further alarmed by the fact that when labor begins this peculiar heart action may become more accentuated and the heart tones may even stop in the first stage of labor. Persistent transverse lie is also very suggestive of a malformed uterus. Incarceration of the non-pregnant horn leading to dystocia may be discovered upon doing a vaginal examination and lead you to the correct diagnosis. Taylor[1] found this condition in 4.5 per cent of 271 cases he reviewed. A patient with a double uterus emptying into a double or single cervix may deliver from below uneventfully and the condition go unnoticed until the third, fourth or fifth day when she has pains resembling after pains and passes a decidual cast from the non-pregnant horn. Schauffler[7] described this condition.

Rupture of a pregnancy contained in a rudimentary horn is a rare condition, but it has to be considered when faced with a patient that has the clinical picture of a ruptured ectopic pregnancy that has occurred later than the second month. You will be aided in the diagnosis if it is remembered that the round ligament comes on the proximal part of the mass in ectopic pregnancy while in the ruptured rudimentary horn it comes off the distal portion.

Necessity for manual removal of the placenta and the occurrence of postpartum hemorrhage is higher than that found in normal uteri. Smith[8] reported 37.8 per cent manual removals, and 20 per cent of the reports that he studied had postpartum hemorrhage.

A case of endometrosis was reported by Frosch[9], that occurred in a bicornate uterus with involvement of the ovary, omentum and pelvis. This happened in a rudimentary horn with no communication with the cervix or vaginal outlet and appeared to support Sampson's theory of endometrial propagation by retrograde menstruation and transtubal endometrial implantation.

It would be difficult and in all probability fallacious to state that cases of pregnancy in abnormal uteri should be treated by hard and fast rules, other than to say that they should be individualized. Many of these patients will deliver uneventfully. However, due to multitude of complications that can arise, it is best that these people be delivered in a hospital equipped to cope with them.

Way[3] felt that transverse lie, abortion and retained placenta were three rather frequent major complications in malformed uteri. He advised that the transverse lie will often correct itself as late as the beginning of labor. If the baby is large and cannot be moved by attempts at version, a caesarean section should be done. He further stated that you should examine the patient vaginally as soon as the membranes have ruptured and if there is no placenta previa and if the cervix is more than one-half dilated, internal version is indicated. If the cervix is not dilated that much or the cord has prolapsed, do a caesarean section. In the case of repeated abortion, radiological examination with opaque media should be done and surgery is indicated where the syndrome is definitely due to the deformity. Then he adds that this is a difficult decision, the surgery is not easy and the risk of rupture with pregnancy is to be considered due to the fact that the scar will be in the fundus. Regarding retained placenta, he advocates early manual removal in the event it does not occur spontaneously.

Figures on mortality and morbidity are not uniform and do not give a true picture. The absence of a true picture is probably due to the fact that the incidence of abnormal uteri is not known, a uniform manner in reporting cases apparently has not been established or is not being practiced, and interest in the subject is probably only aroused when a case

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is stumbled on, as was our patient. As evidence for the above statement I quote Taylor[1], who cited the figures for abortion in malformed uteri of Smith, DeLee, and others, and Schauffler at 12.8 per cent, 25 per cent, and 53 per cent, respectively.

The case we report concerns a 29 year old white gravida six, para four and stillborn two. She was seen by me for the first time on the night of 21st of January, 1950, complaining of a constant desire to urinate and defecate which had occurred rather suddenly about two hours before coming to the office. At that time she was approximately thirty-two weeks pregnant, the baby was viable and in the right occiput anterior position. She was examined under sterile conditions and I was amazed at the marked relaxation of the perineum; you had the impression of examining the patient under general anesthesia. A mass about the size of a medium sized orange was found posterior to the markedly anteflexed cervix that filled the cul-se-sac. This mass had a consistency simulating a subinvoluted uterus. It was movable in almost any direction, but gentle attempts to move it out of the pelvis failed with the patient in marked Trendelenburg or in the knee-chest position. The speculum was inserted and while cleaning off the cervix which was large, soft and lacerated, bright red bleeding occurred. It was felt that this came from a cervical erosion she had; however, she was hospitalized for 24 hours and no further bleeding occurred.

I was at a loss to explain what I had found and just as puzzled as to what to do about it. An obstetrician was consulted by phone that night and it was decided to put her to bed with her hips elevated and to use the knee-chest position several times a day. She was more comfortable in bed, but position never changed the situation. She related to me how later the mass would come down so far that she could not sit down and it made walking very difficult.

On the 7th of March, 1950, I decided that the mass might be one of two things—prolapse of the arms over the head, or possible placenta previa due to the fact that the placental souffle was heard faintly, very low and just over the symphysis on the right. An x-ray revealed that the former was not true. A caesarean section was decided upon due to the placenta previa possibility and because of the dystocia that appeared to be certain if she was allowed to go into labor.

On 8th of March, 1950, a caesarean section was done by Dr. W. L. Eastlack, South Boston, Virginia, and myself. When the peritoneum was opened it was felt that the uterus was rotated or there was a congenitial absence of the left uterine ligament, tube and ovary, because it was not found in its usual location. The uterus was opened and a living normal male weighing 5 pounds 3 ounces was delivered. The placenta was situated very low and on the posterior surface of the pregnant uterus. The husband and wife had desired sterilization of the patient, so the right tube was ligated. Then a further search was made for the left adnexa and, much to our amazement, the left tube, ovary and ligament were found attached to the left cornu of the double uterus in the cul-de-sac. The size of the left uterus was that of a medium sized orange and it was attached at the base to the right uterus. Only one cervix was palpated at the operation. The abdomen was closed and her postpartum course was essentially uneventful.

In questioning the patient about 5 weeks postpartum a number of interesting facts were brought out that have been mentioned before in this paper. Her menses began at the age of 14 years. She had dysmenorrhea that was severe enough for her to go to bed on the first day. The dysmenorrhea improved after the first pregnancy and disappeared after the third pregnancy. The periods would last about 6 days. She was always irregular in that there would be 28 to 35 days between periods. After her third pregnancy she would menstruate every 2 weeks for two to four months, then would revert to the 28 to 35 day cycles for a few months. Occasionally, she would go as long as seven weeks without menstruating. From January, 1949, to 15th of June, 1949, her periods would be every two weeks or 28 to 35 days, and, therefore, she was not sure of the date she last menstruated before this pregnancy. She has never had dyspareunia. There was no bleeding or abdominal cramps after the baby began to move.

All of her previous deliveries were spontaneous, lasting from 6 to 10 hours, and the babies weighed from 7½ to 10 pounds. She says that the first pregnancy laid more to the left of the midline and all of the subsequent ones laid on the right. She cannot recall any bleeding during any of the prenatal courses, no history of postpartum hemorrhage, retained placenta or the passage of decidual casts. The

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first pregnancy was a stillborn footling with the cord wrapped around the legs. The second pregnancy was a vertex presentation that lived. The third pregnancy was a breech that was stillborn. The fourth and fifth pregnancies were uneventful vertex presentations.

The last pregnancy was always situated decidedly more to the right. You could very easily palpate the fetal parts even accounting for the fact that she was a small woman and, incidently, of a stable temperament.

She had a hemoglobin of 56 per cent, which later fell to 50 per cent, despite the fact that she said she ate well and was also given a battery of hematinics. The hemoglobin never rose until she was given 1,000 cc. of whole blood while in the hospital (60 per cent on the day of the surgery following 500 cc. of whole blood). At five weeks postpartum it was 72 per cent, with the white count and differential within normal limits.

On examining her bimanually under sterile conditions five weeks postpartum only one cervix was found which was about ⅓ larger than you would expect. There was an opening in this large cervix which measured about 2.5 to 3 cm. across. A sterile probe was gently with fingertip pressure inserted about 6 to 7 cm. on the left toward the non-pregnant uterus and about 3 to 4 cm. on the right toward the formerly pregnant uterus, and I felt that there was an obstruction between the two openings. The right horn was soft and about ⅓ larger than a normal uterus, and the left horn was soft and about ⅓ smaller than a normal uterus. If these findings be true, this uterus would be of the double uterus with a single cervix type or uterus bicornis unicollis.

In conclusion, the subject of uterine anomalies has been discussed with reference to history, occurrence, embryology, classification, diagnosis, complications, management, and one case of pregnancy in a double uterus with a single cervix is reported.

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**Penicillin Ointment in Eyes of Newborn.**

Silver nitrate solution, the preparation now being used in the eyes of newborn babies to prevent infection, may be replaced by penicillin ointment, as the result of a recent study. (Silver nitrate is required by law in many states.)

Drs. H. H. Davidson and N. J. Eastman and Sanitarian Justina H. Hill of Baltimore, writing in the April 7th *Journal of the American Medical Association*, recommend that penicillin ointment be used in the eyes of newborn infants in preference to silver nitrate because, in their opinion, it is "the most efficacious, the safest and least irritative agent" for this purpose.,

Laws requiring the use of silver nitrate are a precautionary measure to protect newborn babies from gonococcus eye infection. Such an infection—which can easily be transmitted at birth to an infant by a gonorrhea-infected mother—could result in serious eye damage or blindness. The doctors expressed the opinion that, where necessary, regulations governing the use of silver nitrate should be changed "to permit the use of penicillin ointment in hospital practice when the physician prefers it to silver nitrate." These recommendations come as a result of their study of three different methods of eye care at Johns Hopkins Hospital—penicillin ointment, penicillin intramuscular injections, and silver nitrate. Each method was used in rotation for a week at a time. During a two-year period, 4,163 infants were treated with one of the three methods. All three methods proved equally effective in preventing gonococcal infection, but the incidence of eye irritation varied greatly.

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# Medical Society of Virginia Cancer Committee

*Chairman*, GEORGE COOPER, JR., M. D.

Medical School Building, University, Virginia

Reprints of this and preceeding Bulletins may be obtained from this office

May, 1951

## Case Reports

**Case 1.** A 45 year old white woman, after a normal period, began spotting irregularly. She had no more periods but continued spotting for six months. She then consulted a physician who, without doing a pelvic examination, told her that she was passing through the menopause and prescribed medication (probably female sex hormones). For eighteen months, the treatment and symptoms continued unchanged, and no pelvic examination was done. Finally the patient had a rather severe hemorrhage. Frightened, she went to another doctor who found a friable, fungating growth replacing the cervix, vaginal extension, and a frozen pelvis. A biopsy of the cervix was reported as showing carcinoma. In spite of a good immediate response to X-ray therapy and radium, the prognosis is, of course, very poor.

**Case 2.** While the above patient was still under treatment, a friend of hers, also a woman in her late 40's who had passed the menopause, asked advice concerning a slight leukorrhea of three weeks' duration. Pelvic examination revealed an erosion of the cervix less than one half cm. in diameter. There were no other abnormalities. A biopsy from the edge of the erosion showed carcinoma. Following treatment with X-ray and radium, the cervix appears normal, and the prognosis is excellent.

**Comment:** The contrast between the performance of these two women and of the first doctor seen by each as striking as the difference in their prognoses — in case 1, extremely poor ,in case 2, very good.

Physicians cannot discover curable cancers of the cervix unless women seek attention promptly for minor disturbances.

Physicians will not discover the true nature of any pelvic complaint unless they approach their task intelligently. A complete, careful pelvic examination including visual inspection of the cervix and biposy of any abnormal area is a minimum standard routine.

Treatment without an established diagnosis is an extremely dangerous procedure, apt to do far more harm than good. Too often, as in case 1, it results in allowing a possibly curable cancer to progress undiagnosed to an incurable stage.

That the excellent handling noted in case 2 is becoming more frequent is demonstrated by the gradually improving survival figures for cancer of the cervix. Persistent improper handling such as was noted in case 1 must be condemned as gross negligence.

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# MEDICAL PSYCHOTHERAPY*

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Any medical procedure—be it diagnostic examination or the ligation of a blood vessel—produces and entails a relationship or interaction between doctor and patient. What the patient feels toward his physician is as important as the physician's feelings about the patient. *Medical psychotherapy is that part of medical treatment in which relationship between doctor and patient is the principal therapeutic agent.*

For the convenience of description, one may distinguish between brief psychotherapy, intensive psychotherapy and psychoanalysis. *Psychoanalysis,* which in terms of time and depth is the most exhaustive method, is indicated for rather severe personality disorders. Here doctor-patient relationship is purposely utilized to establish a so-called "transference neurosis". This means that the patient transfers his neurotically distorted feelings of love and hate onto the therapist, and thus can gain a mirror-like image of his behavior in reality situations, without the fear of retribution or punishment. In turn, this provides the patient with insight into his neurotic patterns in interpersonal relationships, and such recognition leads ultimately to correction and cure. Moreover, during this process, the physician—as Kubie expresses it—"loans" his ego to the patient whose ego and ego defenses are too weak to handle reality. As the recovery progresses the therapist gradually withdraws this ego support from the patient.

*Psychoanalysis,* ever since it became a tool of medical treatment, has been criticized for being exclusive and unwieldy due to the time it consumes, and though one remained aware of the limitations of short cuts, emphasis on the time factor led to various experiments and developments in abbreviated psychotherapy.

*Intensive psychotherapy* does not aim at a transference neurosis; it abandons certain details and methods of psychoanalysis—like free association technique—and deals with problems less in a longitudinal and biographical way than in the order as they present themselves. However, similar to surgery which has to be prepared to deal with any emergency that may arise during an incision into the abdominal cavity, intensive psychotherapy has to be prepared to encounter phenomena of transference and treatment of a personality disorder on analytical terms. This necessitates solid familiarity with psychiatric management and is usually beyond the limitations of time of the general practitioner or non-psychiatric specialist.

The matter is different with regard to *brief psychotherapy.* Throughout the country, medical schools attempt to integrate the teaching of psychotherapeutic management into the medical curriculum. Saslow estimates that psychotherapeutic techniques can be learned within a period of three months for practical application in any specialty. Greenhill, in the so-called "Duke experiment in methodology", tries to acquaint the medical house staff of Duke Hospital with these procedures. Here attention has been centered on interviewing techniques and the management of doctor-patient relationship. The house officers are rotated at six week intervals through the Psychosomatic Clinic Service and, after brief instruction in interviewing, they are encouraged to learn evaluation of doctor-patient relationship by practical work with patients under the supervision of the Psychosomatic Division of the Psychiatric Service. It has been observed that such involvement leads to early recognition of their own position within the medical setting and saves considerable time as compared to merely theoretical discourse about doctor-patient relationship.

During the last year's symposium, it was asked in discussion, how, for instance, the general practitioner who encounters most of these problems could deal with them in a practical way. Therefore, I would like to attempt a description of the prerequisites and techniques of brief psychotherapy. Brief psychotherapy is relationship treatment. The physician aims at a positive relationship which permits him the greatest possible influence on the patient. The primary *prerequisite* is knowledge of psychodynamics, which denotes the science of motivated human behavior or the awareness of "why people act and

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react as they do". Another essential prerequisite is a clear cut stand of the physician with regard to his own feelings about the patient's complaint or situation. The physician should avoid authoritarian, omnipotent, impatient or moralizing attitudes. Awareness of such feelings within himself will allow the physician to create an atmosphere of permissiveness in which the patient can feel free to express his emotions without the fear of condemnation or degradation. The *techniques* consist of interviewing, correlation and ventilation. Interviewing technique is measured by a scale of verbal activity. The physician controls the interview, but says little. He watches for clues of areas which are charged with emotion, in other words, for hints on subjects that have consciously or unconsciously particular meaning for the patient. Such clues may be a special emphasis on any subject, repetition of statements, association of seemingly unrelated topics, sudden blocking on any such topic or manifestations of the autonomic nervous system, like blushing, sweating, trembling, etc., during the conversation. They point to correlations between onset or exacerbation of an illness and precipitating events and situations to which the patient is highly sensitive. These clues and correlations provide information as to the areas upon which the physician should focus. Focusing on charged areas gives the patient a chance to ventilate. By ventilation, one means the verbal expression of feelings which had remained bottled up and therefore never reached the level of consciousness. In the majority of cases, such ventilation is sufficient to alter, improve or cure the symptomatology. Moreover, judicious attention to these charged areas will greatly enhance the doctor-patient relationship since the patient begins to feel that the physician understands his problems even beyond the power of his own awareness and expression.

In brief psychotherapy, insight is of secondary importance. Therefore, an interpretation like "it is your mother whose Victorian ways annoy you" will only lead to intellectual, but never emotional acceptance, while the underlying tension state of most of the psychoneurotic and psychosomatic disorders encountered is emotional and not intellectual in character. Premature interpretation also blocks production of material; the patient feels caught and soon abandons the painful topic in further conversation. Likewise, explanations about the physiology or the interrelationship between emotions and body function are often fruitless. Insight as a consequence of ventilation may be helpful, but without such ventilation it merely represents the physician's knowledge of the underlying connections and remains intellectual without bearing the stamp of emotional acceptance by the patient. Finally, the physician should know the suitability and prognosis of individual psychoneurotic and psychosomatic disorders with regard to treatment. As a general rule, the time of treatment required is proportionate to the length of the illness. A second factor is the complexity of the illness; further considerations are flexibility of the individual and adaptability of the surrounding milieu.

*Summarizing*, it may be stated that brief medical psychotherapy is aware of its limitations but can point to rather spectacular results in the disappearance of disabling symptomatologies. Particularly, the field of private practice seems to be suited for brief therapy. The physician-patient relationship, when firmly established, can—even if the patient sees his doctor once a year—remain the stable factor in a changing environment. The patient may return to his doctor at any time, and the doctor, by previous acquaintance and experience with the patient, can take up the slack of charged areas, allow ventilation and keep his patient on an even keel.

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# THE PSYCHOLOGICAL REACTION TO THE UNAESTHETIC NOSE

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People in this advanced age know too much about the wounds of social suffering to ignore the misfortunes that follow a disfigurement of an exposed part. Coming right down to the problem of personalities, arising out of such a situation as sensitivity to the malformed nose, many recorded case histories will reveal how adversely the lives of their psychological adjustment are affected by their consciousness of such a malady.

Their feelings concerning their relationship with other people and their attitude toward various situations are all colored by the dissatisfaction with their appearance due to the disfigurement. There is a self-consciousness which manifests itself in a constant concern over what others are thinking of them.

The fluctuations in mood and behavior are often expansive and the desire for personal improvement in appearance is deeply entangled with many psychological roots. Every human being so afflicted has a real desire to have their appearance improved, and if this desire is not satisfied there are often repercussions. These repercussions may result in social rejection and rebuff and lead beyond social retreat to the abandonment of personal goals.

Because it protrudes from the center of the face, the nose is frequently the most unaesthetic feature, and when its appearance, through reconstructive surgery, is made to approach that of the normal, the other features of the face, although not of the best appearance, will share with the nose in the improvement.

With many people there is deep resentment against the nose with which they were born. Although there is little evidence of manifestation of this resentment, these individuals not infrequently become profound introverts. Well planned and well executed plastic repair of the disfigurement will often result in improvement of the entire personality of the patient.

In addition to the psychological phase of the unaesthetic nose, there are often certain physical aspects which interfere with good function and should claim attention. The effect of certain types of noses on air currents and the total functioning is well understood. However, it is not generally known that there is a distinct alteration in the direction and volume of air currents in subjects having a long and hanging tip, or those with a saddle or depressed bridge.

The nose is an air conditioner and when the task of moistening, warming and cleansing the air which is delivered to the lungs is interfered with because of a long drooping tip or a sagging bridge, something should be done to restore function. In both types respiratory improvement is greatly facilitated when plastic surgery of the tip is applied.

The bones of the nose, muscles, cartilages, nerves, arteries, veins and soft parts (skin and epithelium) constitute an intricate coming-together of anatomical structures and since this complex mechanism composes one of the principal avenues to good health we cannot overemphasize the importance of proper correction of an existing imperfection of form.

The results subsequent to correction are two fold:

1. An improvement in the appearance of the face as a whole, with, as a result of this change, an elevation of the morale of the patient.
2. Improvement in the function of the nose.

## Comment

In undertaking this type of surgery adequate consideration should be given to the possibilities of improving both the function and appearance of the nose. If this is accomplished, the much needed psychological improvement will be almost certain to follow.

*1635-A Monument Avenue.*

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## CLINICOPATHOLOGICAL REPORTS

**From the Case Records of the Medical College of Virginia and the University of Virginia Hospitals**

HARRY WALKER, M.D., *Editor*
WILLIAM KAY, M.D., *Associate Editor*

CASE NO.: B-81679

A 15 months old white female child was admitted to the Medical College of Virginia Hospital with the following history. She had been well until approximately one month before admission when she became fretful, anorexic, more or less uninterested in her surroundings and began to vomit her feedings. These symptoms progressed gradually with the child becoming weaker and weaker, staggering when attempting to walk, falling frequently—usually to the left, and finally, shortly before admission, becoming unable to walk, stand or sit without assistance. By this time she had become very listless, saying nothing spontaneously, and never crying loudly even when disturbed. She seemed to prefer to lie on her right side and frequently rubbed her head as if in pain. It became necessary to feed the child forcibly and she continued to vomit most of her feedings. She had lost approximately 7 lbs. during her illness. During the illness the child had been constipated and the urine was scanty. The parents had not been aware of fever and there had been no chills or convulsions. The child was referred to the hospital by a physician, but it was not stated as to whether he had attended her during this illness.

The child had been a full-term baby weighing 8 lbs. and delivery had been spontaneous and uncomplicated. The diet had been adequate, including orange juice and cod liver oil. Development had been normal and the child walked at 10 months of age. She had a mild attack of measles at 5 months and had had two minor upper respiratory infections, dates unknown. She had received the first dose of DPT toxoid about 5 days before the onset of the present illness and, at about the same time, had been exposed to mumps. There was no history of severe head trauma, though the child had fallen several times from a high chair.

A 3 months old brother, a 2 year old sister, and the father and mother were living and well. There was no history of familial disease.

The family resided in the city and obtained water and milk from approved sources.

*Physical examination:* T. 100°F (R), R. 20, P. 120. The child was thin, listless, but irritable when disturbed. The skin was pale and dry with poor turgor. The anterior fontanelle measured 1 x 1 cm. and was slightly depressed. The pupils were normal and reacted slowly to light. The fundi were normal. The ears, nose and throat were not remarkable. There appeared to be some slight resistance to flexion of the neck and spine. The lungs were clear, the heart was normal and the abdomen was soft without tenderness or palpable masses. The tendon reflexes were hypoactive but equal. No pathological reflexes were obtained and Kernig's sign was negative. No sensory abnormalities were noted. The child moved all extremities but weakly.

*Laboratory Data:* Urine—straw, acid, sp. gr. QNS, albumin and acetone negative, sugar trace, microscopic negative. Hemoglobin 13.3 grams, RBC 4,400,000, WBC 13,300 polys. 72, lymphs. 21, eos. 2, monos. 5. Spinal fluid—clear, 90 cells with 64% polys., protein 100 mgm., sugar 60 mgm.%, chlorides 586 mgm.%, Wassermann negative, smear for organisms negative. Serum sodium 140 meq/L, potassium 4.0 meq/L. Fasting blood sugar 94 mgm.%. Intradermal O. T. 1:10,000 through 1:100 negative at 24, 48 and 72 hours. X-rays of the mastoids were reported as negative. X-ray of the chest was first reported as showing a suspicious density in the right apex. A repeat chest film the next day was reported as negative.

Following admission the child began to take diet and fluids fairly well and retain them. She ran a very low grade fever, the temperature varying from 98° to 100° rectally. On the 3rd hospital day she was started on penicillin, 50,000 units every 4 hours I.M., and dihydrostreptomycin, 150 mgm. every six hours I.M.

At the end of the first week in the hospital it was noted that the child had a definite left facial weakness of the central type and apparent weakness of the left arm and leg as compared to the right. However, she appeared much less lethargic, was "more successful in trying to sit and stand", and continued

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to take her diet. On the 9th hospital day a neurosurgical consultant noted a "flaccid left hemiparesis" but no "evidence of increased intracranial pressure". Another consultant confirmed these findings and also noted that the child preferred to be on her right side and, when turned to the left, would immediately start turning back to the right. A repeat lumbar puncture 5 days after admission showed a similar cell count and protein in the spinal fluid with spinal fluid sugar of 73 mgm.% and chlorides 714 mgm.%.

Following the slight improvement noted initially the child began to go downhill and, by the end of the 2nd week in the hospital, began to vomit her feedings again. She became progressively more lethargic, the hemiparesis became more marked, and she began to run a little higher temperature—99.5° to 101°. Penicillin was discontinued on the 13th hospital day and streptomycin on the 15th hospital day, at which time aureomycin, 250 mgm. every 8 hours by rectum, was started. In addition the child received supplemental vitamins and, during the last 8 day, daily subcutaneous infusions of glucose in saline or half-normal Ringer's solution. The child grew progressively worse and died on the 19th hospital day.

Additional laboratory studies: Routine agglutinations negative except for Proteus X-19 which was positive 1-40 and the heterophile agglutination of 1-14. Spinal fluid cultures, both routine and acid fast, were reported as negative up through the 3rd week after admission.

DISCUSSION BY DR. ALBERT M. EDMONDS*.

We are presented today with a 15 months old white female child who was admitted to the hospital on the 15th day of February with a history of having been well until approximately one month previous to admission, when she became fretful and anorexic, more or less uninterested in her surroundings and began to vomit her feedings. Symptoms progressed gradually with the child becoming weaker and weaker, staggering when attempting to walk, falling frequently, usually to the left. Finally, shortly before admission she became unable to walk, stand or sit without assistance. By this time she had become very listless, saying nothing spontaneously, and never crying loudly even when stimulated. She seemed to prefer to lie on the right side and frequently rubbed her head as if in pain. It became necessary to forcibly feed the child, which again resulted in vomiting; the parents were not aware of any fever. The child had no convulsions or chills.

About five days before the onset of the present illness, the child received one injection of diphtheria-whooping cough, and tetanus toxoid; she had also been exposed to mumps at about the same time. There was no history of any severe head trauma.

Physical examination revealed a child with temperature of 100° F. The child was thin, listless and irritable when disturbed. The skin was pale with poor turgor. The anterior fontanelle was slightly depressed, as might be expected in any child who is dehydrated.

The remainder of the physical examination was not remarkable, with the exception of the fact that there was slight resistance to flexion of the neck and spine. The child moved all extremities weakly.

*Laboratory data:* Urinalysis revealed a trace of sugar which I think probably we can disregard. The blood count was normal with the exception of a white count of 13,300. Spinal fluid revealed 90 cells, 64% of which were polys. Protein was 100 mg.%, sugar 60 mg.%, chlorides 586 mg.%, and the smear did not reveal any organisms. The blood chemistry examinations were within a normal range. O.T., 1:10,000 through 1:1,000 were negative through one, two, and three day periods.

I am sorry I did not bring the X-rays, but it was my own neglect; I left them at the office. X-ray examination of mastoids and examination of the chest were reported as negative. On the first chest film there was one area which was a little suspicious, but on the second film taken the next day, was reported as negative.

Following admission, the child seemed to do somewhat better—she still ran a low grade temperature, varying between 98° and 100°F. The child was begun on penicillin and streptomycin after admission. At the end of a week the child had definite left facial weakness of the central type, and apparent weakness in the left arm and leg as compared to the right. However she appeared much less lethargic and was doing somewhat better. On the ninth hospital day a neurological consultant noted "a flaccid left hemiparesis", and no evidence of increased "intracranial pressure" —this was borne out by a second consultant. A repeat lumbar puncture, 5 days after admission, re-

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vealed the same findings with the exception of the fact that the sugar this time showed 73 mg.% and chlorides of 714 mg.%.

The child continued to go downhill, and by the end of the second week was vomiting again, very lethargic, the hemiparesis was more marked, and the temperature was a little bit higher. At this time the penicillin and streptomycin were discontinued, and aureomycin was tried with no effect. The child went downhill and died on the 19th hospital day.

Agglutinations examinations were all within a reasonable, normal range. The cultures, both routine and acid fast, were reported as negative through the third week after admission.

The onset and early course of this patient certainly would make one think of a neurological lesion, the exact nature of which isn't at all specific. One immediately wonders of what significance is the diphtheria-whooping cough and tetanus toxoid which was given five days before the onset. As we all know, occasionally whooping cough vaccine will result in convulsions, drowsiness and, later on, mental retardation, the onset of which is very rapid, generally within a period of minutes to possibly 12 hours after the injection has been given. No such reaction has ever been reported within a period of more than 24 hours after the original shot. So, on the basis of the fact that the onset was 5 days after the injection, I think we can disregard the toxoid given as an etiological factor.

The child was also exposed to mumps. Mumps meningitis is generally an acute illness with high fever, lethargy, severe headaches and frequently vomiting. The course is relatively short, generally lasting about 3 to 8 days. I think we can disregard mumps meningitis as a diagnosis in this case.

There is no history of head trauma, and I think we can rule out a subdural hematoma on the basis of the fact that generally the symptoms are acute, with either convulsions or vomiting as the result of the marked increase of intracranial pressure. Throughout this case report, we have repeated evidence of no increased intracranial pressure, so I think we can rule out subdural hematoma on this basis.

A purulent meningitis seems very unlikely. If a purulent meningitis had run a course of a month, certainly we would expect the child to be very acutely ill by that time, if still living, and certainly the spinal fluid would reveal the diagnosis immediately.

A brain tumor certainly is possible in this situation—the early history could well be that of a brain tumor. If it were such, the chances are that it would probably be a medulloblastoma since this is relatively common in children. Two-thirds of all brain tumors in children are sub-tentorial. If this case were a brain tumor, the chances are that it would be supra-tentorial, since the symptoms in this case suggest adhesion in this location. It isn't absolutely imperative, but certainly one would expect with a tumor that there would be some evidence of increased intracranial pressure. If not early, certainly one might see evidence of increased intracranial pressure later on before death, which we do not have any evidence of in this case. We would not expect to find red cells in the spinal fluid with a brain tumor. It is unlikely that the child would run fever with a brain tumor, as was true in this case. I do not believe the child had a brain tumor, although certainly it is not possible to completely rule it out at this time.

Brain abscess is generally preceded by a focus of infection, either by direct spread from the sinuses or ears, or possibly secondary to an infection of the lungs or throat—neither of which do we have any evidence of in this case. The course of the illness could well be that of a brain abscess. The laboratory findings also could well fit in with such a diagnosis, particularly the spinal fluid findings of a relatively small number of cells with no organisms present, either by smear or culture. One would expect again that with a brain abscess there would be a good possibility that one might have evidence of increased intracranial pressure, which we do not have here. I do not believe it is possible to completely rule out a brain abscess, but I do not think that is what the child died of.

In neurological problems in children, one has to consider the possibility of lead poisoning or lead encephalopathy. In this case we have no history of exposure, which we may or may not have. Generally speaking, the onset is rapid, with convulsions or vomiting as a result of the marked increased intracranial pressure, which one almost invariably sees with lead encephalology, due to the tremendous edema and swelling of the brain. We again do not have any evidence, according to the protocol, of increased intracranial pressure.

Frequently with lead poisoning, one can find stippling of the red cells, which we do not find present

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in this case. Also, one can find the lead line in the long bones on X-ray. All we can say in this case is that there was no lead line in the upper end of the long bones on the chest plate. No X-rays of the long bones were taken. Occasionally, one can see a lead line along the gums which was not present in this case. I do not believe that the child had lead poisoning.

Encephalitis, either primary or secondary, certainly is a good possibility. By primary, I was referring to possibly St. Louis type or Equine type of encephalitis. Secondary, might be secondary to whooping cough, chicken pox, measles or possibly vaccine.

Certainly the early history in this could well fit in with a diagnosis of encephalitis. I would expect, at least later on, that the child would have developed some of the more common clinical signs and symptoms of encephalitis, such as possibly spasticity, somnolence, delirium or any one of the many different syndromes which we see with encephalitis. We have no history of any exposure to any of the previously mentioned causes for secondary encephalitis, such as whooping cough, etc., and we have no evidence of the disease, either before or after the onset of the illness. The spinal fluid findings certainly could be found in any case of encephalitis. I do not think the child died of encephalitis, although certainly it is not possible to rule it out with the findings we have in this case.

Tuberculous meningitis I believe is a good possibility in this child. The onset is generally gradual with the symptoms being rather non-specific—frequently the child is not quite up to par, may complain of headache, may vomit, and may or may not have fever in the initial onset, if so, the fever is frequently low. The examination of these children generally reveals paralysis, which may or may not be localized; frequently the paralysis is bizarre, involving various segments of the nervous system. Meningeal signs develop which was true in this case. The lumbar puncture generally reveals a small number of cells which are either polys or lymphocytes, supposedly polys early, although I don't think one can depend on that.

Generally the spinal fluid sugar and chlorides are described as low and of course the clincher in the diagnosis is the finding of acid fast organism in the smear or the finding of organisms by culture or guinea pig innoculation. Practically always, the tuberculin is positive, and in about 50% of the cases one would expect to find some other evidence of tuberculosis as, for example, a lung lesion.

As I said at the outset, the early course in this case fits in well with a diagnosis of tuberculous meningitis. The spinal fluid is consistent with this diagnosis, with the exception of the fact that the sugar, I assume, is within normal limits. I don't think one can put much faith in a spinal fluid sugar determination without a coincidental blood sugar determination. The sugar is reported as 60 mg.%. If the blood sugar reported was taken at the same time, and was 94 as reported, one could assume that it is a perfectly normal spinal fluid sugar; on the other hand, if the child had had a lot of glucose, and the blood sugar had been 150, 170 or 200, a spinal fluid sugar of 60 is certainly low. I think it would be of help to know if this sugar was taken coincidentally with the spinal fluid sugar. The chlorides are low in that it is generally considered that less than 60 is a low chloride. Again the same thing applies in that it would have been helpful to have had a coincidental blood chloride determination in interpreting this result.

The smear is negative for organisms. There are various reports in the literature in regard to the accuracy of this determination. It all depends on the diligence of the person examining the spinal fluid. Some investigators have reported an incidence as high as 80 to 90% positive with tuberculous meningitis. In many other places I think if one would check the records one will find that it would be very low, probably 10%, or possibly lower than that, depending on how much diligence is put forth in examining the spinal fluid. These men who report the high incidence of positive smears spend hours examining the spinal fluid, and certainly one would expect better results under these circumstances.

The tuberculin is negative, which certainly is a hard thing to overlook. In a very high percentage of the cases the tuberculin test is positive with tuberculous meningitis. It's possible in a late case of tuberculous meningitis to have a patient who is so knocked out that they are unable to react to the tuberculin, and that may have been the case in this situation.

The chest X-ray is negative which, as I said, we would expect in about 50% of the cases of tubercu-

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lous meningitis. The later course would also fit in with the diagnosis of tuberculous meningitis. The untreated case of tuberculous meningitis generally lives between 2 to 6 weeks, and this child had a gradual downhill course, and died at approximately 6 weeks or so. The cultures were negative, which I think, probably depends on how diligently one exercises in attempting to culture the organism. A guinea pig would not have helped much in this case, because it takes 6 weeks, and the patient would have been dead anyway by the time the report was received. Possibly one of the bacteriologists might comment on this relatively new tuberculosis culture media—egg yoke I believe it is—from which one can expect a result in about a week's time.

The spinal fluid sugar and chlorides frequently are not diminished until late in the illness, frequently only a day or two before death. We don't have any information in regard to the spinal fluid sugar and chlorides just before death, and therefore we can't possibly put too much emphasis on the chloride and the sugar reports. Generally speaking, when tuberculous meningitis patients die, the temperature shoots up to a high level of 106 or 107. We do not have any statement in this case as to whether that happened or not.

I believe the patient died of tuberculous meningitis. If so, we probably will find some other miliary foci in the other organs which, as we know, may give rise to tuberculous meningitis as the result of a miliary spread. Frequently we have foci in many of the other organs, such as the liver, spleen, etc. It is hard to explain the negative tuberculin, and that is the thing that bothers me most, but I think it's possible that this child was sick enough that she was unable to react to the tuberculin at that time.

DR. KAY:

There is some additional information which was withheld from the protocol for obvious reasons, but which I would like to give now before the pathologist gives us his findings. On the day before this patient died, ventriculograms were done by the neurosurgical service with the possibility in mind of a brain abscess or tumor. There was dilation of all the ventricles with upper displacement of the dilated fourth ventricle. Following this, a suboccipital craniectomy was done, and a grayish tumor filling the fourth ventricle was found, and a biopsy was taken. Postoperatively, the patient went steadily down hill and died. Clinical Diagnosis: 1. ?Encephalitis. 2. ?Brain abscess.

Dr. Edmonds' Diagnosis: 1. Tuberculous Meningitis.

PATHOLOGICAL DISCUSSION BY DR. G. R. HENNIGAR*.

At necropsy, there was a neoplastic lesion, six and one-half centimeters in widest diameter, occupying the left cerebellar hemisphere and apparently arising from the fourth ventricle. This massive involvement of the hemisphere undoubtedly accounted for the patient's symptoms of falling to the left and the staggering gait.

Histologically, these tumors are characterized by ependymal cells surrounding blood vessels (pseudorosettes) and surrounding small clear spaces (rosettes).

The nuclei of the ependymal cells are situated at a considerable distance from the blood vessels (see fig. 1). Their fibers occupy the space between the

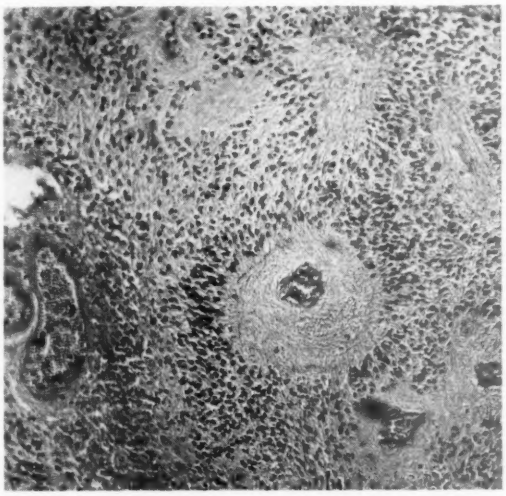

Fig. 1. The tumor cells are arranged around blood vessels and their processes run through what appears on the section to be an unstainable halo, around the vessel.

nuclei and the vessel. I have found this to be quite characteristic and although the palisading surrounding vessels in astrocytomas is common, the distance between the nuclei and vessel is not so great.

The cells are round with sparse chromatin content and are separated by glial fibers (see fig. 2). The pathognomonic feature lies in the finding of the

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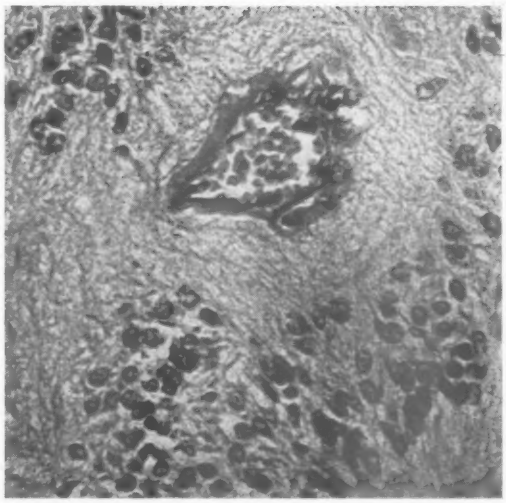

Fig. 2. The fibers in the halo can now be seen. The nuclei of the tumor cells are oval or round and separated from one another by glial fibers. Prominent nucleoli, bizarre mitotic figures and marked variation in size and staining qualities are absent.

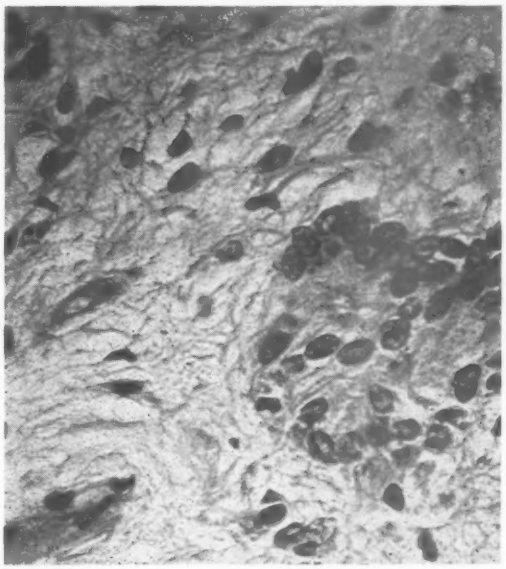

Fig. 3. Cells are arranged around a small canal, a true rosette.

true rosette (see fig. 3). Here, the cells line up around a space and the picture is reminiscent of the spinal canal. Of course, the ventricular system and spinal canal normally are lined by ependymal cells. Unfortunately, it is most difficult to find these true rosettes in the majority of ependymomas.

Lastly, one is often impressed with the frequency of occurrence of areas simulating other members of the glioma. In fact, very often there are clearly neoplasms of the brain which are both ependymoma and medulloblastoma, or ependymoma and astrocytoma.

The last lantern slide (see fig. 4) reveals streaks of calcification. Calcification is more common in

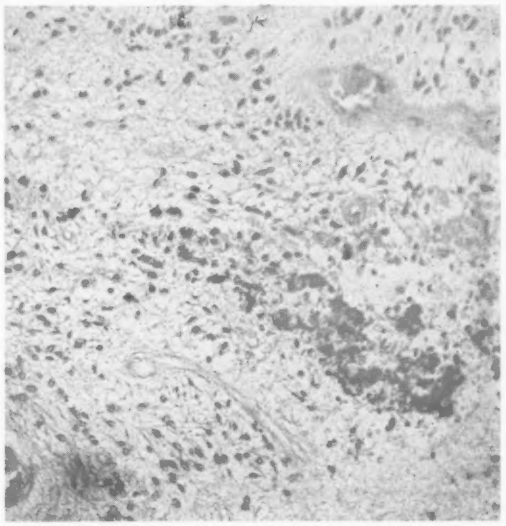

Fig. 4. In the lower part of the picture streaks of calcification are present. The stroma is abundant and the cellularity moderate.

ependymoma than is usually appreciated and may be of some help to the radiologist in the localization of the tumor, although I am sure in this case, due to size of the tumor, it was of little importance.

This case is interesting to us by virtue of the fact that it occurred in such a young child. The most common tumors in this region, that is, midline cerebellar and lateral cerebellar locations, are medulloblastoma, astrocytoma, ependymoma and hemangioma. The ependymomas, according to different writers, account for from 1 to 5% of all intracranial tumors. The clinical story is one of the effects of increased intracranial pressure, followed by symptoms and signs of cerebellar invasion.

Anatomical Diagnosis:

Ependymoma of cerebellum.

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## MEDICAL SOCIETY OF VIRGINIA

## PUBLIC RELATIONS

### Membership Roster.

By letter dated February 21, 1951, to all secretaries of local medical societies, the executive office of the Medical Society of Virginia requested a membership roster of the respective societies. While not yet complete, the response has been most gratifying. This is especially true with some of the larger components.

Comparing the local membership with the state society roster indicates which physicians have not to date become members of the state organization. In view of the fact that membership in the American Medical Association is contingent upon membership in the state society, much confusion and embarrassment can be avoided in billing A.M.A. dues if all local medical society rosters are received by the executive office. The comparison will be made and the roster returned.

Incidentally, the new address of the Medical Society of Virginia is 1105 West Franklin Street, Richmond 20.

### First Seminar Held.

Much interest has been shown in the post-graduate course program as outlined by the Department of Clinical and Medical Education of the Medical Society of Virginia. The plan is to help keep Virginia's physicians abreast of medical progress without the necessity of prolonged absence from their practice.

As an immediate response to the Department's proposals, a clinical session was arranged in Tappahannock for the Mid-Tidewater and Northern Neck Medical Societies. Commencing at 2 p.m., April 11, the session would end at 9 p.m., interrupted only by the dinner hour.

Drs. H. Hudnall Ware, Jr., Edwin L. Kendig, Jr., and Thomas W. Murrell, Jr., of the Medical College of Virginia are the scheduled lecturers. "The Management of Abnormal Presentations", will initiate the program followed by "Acute Nephritis and the Nephrotic Syndrome". Rounding out the program would be "Treatment of the Commonest Skin Eruptions Seen in this Area", "The Significance of Pelvic Pain and Metrorrhagea", and "Common Respiratory Infections in Children".

Topics of such prime importance to physicians should certainly earmark the project for future success as well as demonstrate the Department's ability and willingness to go forward with well integrated "on-the-scene post-graduate seminars".

### Ethics Committee Meets.

The Ethics Committee of the Medical Society of Virginia met at the State Headquarters, April 5, to consider the highly publicized subject of "kickbacks" in Virginia. Convening under the chairmanship of Dr. M. H. Harris, of West Point, the Committee discussed at length the ethical aspect of the kickback situation. Drs. H. H. Hurt and K. D. Graves, the other committee members, were in full accord with the chairman that the practice was unethical.

However such fee-splitting activity in Virginia today was unknown to the committeemen.

It is well to note that the Medical Society is attempting to discover such unethical practices and is ready to denounce and censure any participants. Equally well noted is the fact that the medical profession itself has taken action to purge its membership in an ever-prevailing effort to render top medical service in an ethically sound, professional manner.

The Committee reiterated its feeling that the profession can and will "clean its own house", to the end that legislation in this regard will be unnecessary. Dr. Harris has been instructed by the committee to inform the Governor of this attitude.

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# PUBLIC HEALTH

L. J. ROPER, M.D.
*State Health Commissioner of Virginia.*

## An Alert Against Smallpox

In Virginia since 1939 there have been six cases of smallpox, five in 1940 with four in one family, and one in 1944. In 1950 there were only forty-one cases of smallpox reported in the United States—a new low record. This is in marked contrast to the more than one-half million cases reported for the decade 1920-1929. The forty-one cases reported in 1950 in the United States were scattered through Central and Western States. No case was reported for any of the states on the Atlantic Coast from Maine to Florida.

It would be most unfortunate if physicians and health authorities in Virginia should assume from the above record that smallpox is no longer a threat and should neglect the protective measures of vaccination and revaccination.

Recent history of outbreaks in several American cities reveal the danger. In 1946 virulent smallpox was introduced into two Pacific Coast cities by American servicemen returning from the Far East. Sixty cases occurred in Seattle with nineteen deaths. San Francisco had fewer reported cases and no deaths. There had been no smallpox in either city since 1939.

In the *Journal of the American Medical Association* for March 31, 1951, under "Foreign Letters" there is a report of the recent outbreak of smallpox in Brighton, England, introduced by a Royal Air Force Officer who flew from Karachi by way of Malta, arriving in Brighton on November 29, 1951. He was unwell at the time of arrival but signs were not sufficient for diagnosis. In the same house in Brighton was a young woman, who following exposure was in the hospital for ten days without a diagnosis. Her father next became seriously ill and was taken to the same hospital, where on December 28 his illness was diagnosed as smallpox.

The delay in diagnosis permitted the spread of the disease through three foci:

(1) The hospital where nine nurses contracted the disease and three died. In the same hospital two domestics died; a gardener died and a baby patient came down with smallpox but recovered.

(2) The telephone exchange where one of the patients worked and who infected two other workers.

(3) A laundry—the clothes of the original patient were sent here. Six employees of the laundry contracted the disease and of these two died.

Outside of these main foci in Brighton, there were five cases with one death. In four of the five, the chain of infection was not clearly traceable, but the fifth was a contact of one of the hospital nurses who died.

Summarizing—as of February 3, 1951, two months after arrival of the original case in Brighton—there had been twenty-nine cases with ten deaths.

The vaccination status of the twenty-nine cases is of prime importance. Of the twenty-nine, eighteen had never been vaccinated; nine had been vaccinated in infancy only and two had been vaccinated once or twice following vaccination in infancy. Of the ten who died, seven were never vaccinated and three had been vaccinated in infancy only.

In these days of rapid communication persons who are exposed to smallpox in other parts of the world can easily reach Virginia during the incubation period of the disease. It is possible for such a person to arrive and mingle with our people before he becomes sick and shows any of the characteristic skin lesions.

The moral is plain. The level of immunity to smallpox must be maintained by vaccination in infancy and at intervals thereafter.

THE MORBIDITY REPORT OF THE BUREAU OF COMMUNICABLE DISEASE CONTROL

| | Mar. 1951 | Mar. 1950 | Jan.-Mar. 1951 | Jan.-Mar. 1950 |
|---|---|---|---|---|
| Brucellosis | 5 | 7 | 16 | 13 |
| Diarrhea and Dysentery | 187 | 166 | 629 | 952 |
| Diphtheria | 12 | 23 | 44 | 68 |
| Measles | 2,513 | 233 | 3,995 | 513 |
| Meningitis (Epidemic) | 16 | 23 | 44 | 47 |
| Poliomyelitis | 2 | 1 | 13 | 10 |
| Rocky Mountain Spotted fever | 0 | 0 | 0 | 0 |
| Scarlet fever | 165 | 89 | 479 | 336 |
| Tularemia | 2 | 2 | 17 | 16 |
| Typhoid and paratyphoid | 3 | 9 | 16 | 20 |

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# MENTAL HEALTH

JOSEPH E. BARRETT, M.D.,
*Commissioner, Department of Mental Hygiene and Hospitals.*

## Family Care for State Hospital Patients in Virginia

"Family Care" is the term applied to the placement of selected mentally ill or mentally retarded State hospital patients in homes other than their own, with the full responsibility for their continued care remaining with the State hospital.

The medical staff selects patients who are suitable for placement in a family in the community. The psychiatric social worker finds a home which will meet the needs of the patient and works closely with the physician in helping the patient and the person accepting legal responsibility, who is termed a "Sponsor", for the care of the patient in the home.

Family Care is not new. It was customary in several states to board patients in private homes before there were state hospitals. Obviously this could not be a satisfactory plan for patients who are acutely ill or in need of protection from injury to themselves or others. In many instances a patient recovers from the acute stage of his mental illness in the hospital before he is ready to return to the same environment in which he became ill. He needs to try himself out in a family and community situation before he resumes his place and responsibility in his own home.

In the case of the mentally retarded the selection of patients for Family Care is somewhat different from that of the mentally ill. In many instances it is not expected that these patients will return to community life as responsible citizens. However, we have not yet improved on family life for providing emotional warmth, so necessary to human happiness.

Legislation was enacted in Virginia in 1944 permitting home placement of mentally ill or mentally retarded patients from State hospitals under such a plan as the State Hospital Board should approve. In 1948 the Hospital Board approved a plan which is now being used as extensively as funds will permit. The 1950 General Assembly of Virginia raised the ceiling which may be paid for board from $30.00 per month to $80.00 per month, but did not appropriate funds to facilitate additional placements.

The plan approved by the State Hospital Board specifies that permission for placement must be secured in writing from the responsible relative, or guardian, of the patient. The specifications for the buildings of the home are sufficient to insure "reasonable comfort", adequate sanitary protection, and the absence of fire and health hazards. The home must be easily accessible by highway and telephone. It is taken into consideration in selection of the home that all modern conveniences are not necessarily essential for good home life.

Patients are placed in homes within a 25 or 30 mile radius of the State institution in order to facilitate supervision through the social service department and visits by hospital physicians should it become necessary. Patients are returned to the hospital for annual physical and dental examinations, for treatment of an acute illness or for any extensive medical attention. The State hospital arranges with a local physician for emergency visits for which the hospital will pay "a reasonable rate".

Not more than four patients are placed in a home at the same time. It is not often that a family can be expected to absorb as many as four patients without employing others than are already members of the household. The patient is the person to whom the State hospital is obligated and his condition governs the number to be placed in a home. Four mentally retarded patients may enjoy being together in a home. On the other hand, an emotionally disturbed patient may need to absorb all of the warmth and attention that can be given him; it would be to his detriment to have even one other patient with him.

The placement of a patient in Family Care is always a matter for serious consideration and the interests of the patient must be safe-guarded in every way. It is usually the housewife who offers her home for the purpose of Family Care for hospital patients. She must first decide whether it is practicable for her to undertake this venture. It will mean more work for her. Will this be offset by the satisfaction she will gain in helping someone to return to family and community life? After making her own decision she is going to have to present the plan to her husband and other members of the family, and to the community. It is usually in rural homes that we find facilities most suitable for these patients.

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In the various states in which Family Care has been in practice for years we find that patients are well received and there is appreciation for the good work done by their sponsors. As is to be expected, after one or two families in a community take patients the number of interested families increases.

In Virginia our placements so far have been few, but we are finding exactly what has been demonstrated in other states. Each patient who has gone out into a home has gained from the experience and so has the household. As an example we may present the case of a "child" of 36. We think of her as a child because she is physically quite small as the result of a glandular dysfunction, and her mental ability is comparable to her physique. By objective standards she might be thought of as unattractive, but her emotional response compensates. She was considered suitable for placement in a home. It is a pleasure to see her sponsor's smile and her own response when it is suggested to her that she may show the social worker the new dress that has just been made for her, and the radiant expression when she is reminded of the long coveted doll she is to buy with the nickels, dimes, and quarters which have been given her by new "relatives" in the community. The sponsor does not worry when she has her "quiet spells". The psychiatric social worker has explained to her that she wants to be alone sometimes, and may become a little irritable if disturbed. She enjoys feeding the chickens and likes the dogs. When necessary she visits the hospital for dental work or a physical check-up, knowing that when she is well she will return to her "family".

Each patient that can be placed in a private home leaves a bed available for a patient in need of hospitalization.

## WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

*President*—Mrs. C. M. McCoy, Norfolk
*President-Elect*—Mrs. Herman W. Farber, Petersburg
*Recording Sec'y*—Mrs. L. Benjamin Sheppard, Richmond
*Corresponding Sec'y*—Mrs. Lemuel Mayo, Portsmouth
*Treasurer*—Mrs. Kalford W. Howard, Portsmouth

### Semi-Annual Report of Legislative Chairman.

As Chairman of Legislation, I respectfully submit the following report:

The Legislative Program sent to me by Mrs. Edgar Quayle, National Chairman of Legislation, was forwarded to the President or Legislative Chairman of each of our twelve county societies. In an accompanying letter, I urged each president or chairman to impress on their members the urgency for each one taking a more active interest in Federal government. They were also asked, in their contacts with other woman's organizations, to be prepared at any time to offer simple, logical and unprejudiced reasons why we favor supporting the free enterprise system in not only medicine but all other fields where the people can perform the respective job more cheaply and effectively than can the Federal government.

Conforming with the number one item on our State President's list of objectives, stress was laid on the importance of each member being a *Voter*. I asked that a brief time at the next auxiliary meeting be devoted to emphasize the extreme importance of each member accepting her individual responsibility in this matter and voting. Two auxiliaries have reported surveys of members registered to vote. One also had a legislative program at which a member of the House of Delegates spoke on the "Importance of Voting". One auxiliary has compiled a card file listing the outside woman's clubs and societies to which its members belong.

Names of County Presidents or Legislative Chairmen were sent to Miss Margaret Wolf, Executive Secretary of the Woman's Auxiliary to the A.M.A., to be placed on the mailing list to receive "Capitol Clinics" and "Bulletins" from the Washington office of A.M.A. This material is regularly received by your Chairman and studied.

At our President's direction, I represented the Auxiliary at the annual meeting of the Virginia Council on Health and Medical Care, January 18, 1951. Dr. William T. Sanger, President of the Medical College of Virginia, was elected new Chairman to succeed Dr. H. B. Mulholland. Senator Charles R. Fenwick of Arlington was elected first vice-chairman. It was emphasized that the national crisis makes it imperative that Virginia have a sounder and more thorough program of health education so the people may be able to protect themselves and practice good health, thus assisting to conserve the doctors' time. Mr. Henry Johnson, chairman of the doctor's survey committee and Director of Public

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Relations for the Medical Society of Virginia, reported that three communities had been provided with doctors last year through the Council. It was urged that contributions to the Council be sought in view of the fact that it is a voluntary organization, dependent entirely upon its members for funds to operate.

I attended the Auxiliary Convention in Roanoke in October, 1950, and the post-convention Board meeting there. I am at present taking a Red Cross First Aid Course under the Civil Defense plan. I hold the office of Secretary for the Virginia Woman's Council of Legislative Chairmen of State Organizations, and have just recently been elected to the board of directors of the Richmond League of Women Voters.

I have enjoyed the first half of this year's work as Legislative Chairman under our new President, and look forward with interest and pleasure to the remainder of our Auxiliary year.

Respectfully submitted,
LUCIA K. EMLAW.
(MRS. MAYNARD R. EMLAW)

**Doctor's Day.**

I deem it an honor to be one of your Directors and regret it is impossible for me to meet with you today. Nevertheless, I would like to bring to your attention the importance of the observance of Doctor's Day in your community. This can be a good Public Relations gesture and an enjoyable affair for the doctors. Below I am giving you some suggestions for observance, but first I would like to tell you how this custom of "Doctor's Day" came about.

In 1934 the Woman's Auxiliary to the Medical Association of Georgia passed a resolution to observe March 30 each year as Doctor's Day, the object being to honor the profession, the observance demanding some act of kindness, gift or tribute. In June, 1935, at Atlantic City, the president of the Woman's Auxiliary to the Southern Medical Association, presented the plan to the National Auxiliary, where it was adopted and a recommendation made that each state select a day which would celebrate an outstanding medical achievement in their own state. The date is arbitrary, but most of the Southern States observe Doctor's Day. It has been customary in Virginia to celebrate this occasion in the spring and many of our County Auxiliaries have entered wholeheartedly into it.

The Woman's Auxiliary to the Medical Society of Virginia is very proud of our great doctors and their noble work and wish to pay a tribute to them who have given, are giving and will forever give their services to humanity in our state, in our nation and throughout the world. It is my earnest hope that *every* County Auxiliary will plan to honor the doctors in an appropriate manner this spring.

THE DOCTOR

Lord, who on earth did minister
to those who helpless lay,
Guide now the doctor who fulfills
Thy golden rule today;
Give to his eyes the power to see
The source of hidden pain,
Unto his hands the healing touch
That makes faith whole again;
Give to his voice the ring of truth
That comforts and brings cheer,
To every cry of anxious heart,
Let him be swift to hear,
From thy great store of wisdom fill
his mind and give anew
Thy strength when hours are long
and work seems more than he can do.
Lord, help him see, when tired and worn
from thankless tasks well done,
That his good fight is honored still
and bid him carry on.
He is thy instrument; he stands
for truth and good alone.
Lord, guide the doctor, for his work
is evermore Thy own.

—*Osler.*

SUGGESTIONS FOR DOCTOR'S DAY

1. Publish a tribute to our doctors in your local newspaper.
2. If broadcasting station is available have your Auxiliary sponsor a Doctor's Day program.
3. Send telegrams, letters, notes or telephone each doctor in your county best wishes.
4. Send flowers to doctor's offices, hospitals or clinics.
5. Send boutonniere to each doctor to wear as a reminder of our love, respect and appreciation of him.
6. Place flowers on graves of deceased doctors in your local cemetery.

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7. Visit the sick and retired physicians, or remember them with flowers or notes.
8. Plan social functions for your medical society—barbecue, luncheon, dinner, dance or picnic.
9. Plant trees in honor of your medical society.
10. Give the observance publicity in a dignified manner, which will be a credit to the profession.

Include in your Annual Report your Doctor's Day Program. Your ideas may be valuable to other Auxiliaries.

I wish you success in all of your endeavors.

LOUISE J. HAMNER
(MRS. J. E. HAMNER)

**Public Relations.**

TO ALL AUXILIARIES:

Whether you are a Democrat or a Republican, you are first of all an American citizen.

Mr. Truman wants $10 billion in new taxes. Senator Byrd declares that the budget can be reduced by $9.1 billion without impairment to our military strength. According to Senator Byrd, government expenditures for purely domestic purposes have increased 77 per cent since 1948, and some of these outlays must be cut unless we are going to spend ourselves into the kind of bankruptcy the Russians are counting on.

Senator Byrd lists 97 government bureaus and departments where a reduction of $4.9 billion can be accomplished, another $700 million by eliminating excessive use of civilian manpower, and $3.5 billion in foreign economic aid—a total of $9.1 billion, or almost equal to the $10 billion increase known as "Truman's Terrible Tax". This can be done if Congress can be persuaded to throw out the phony welfare schemes and socialistic programs, and the preparedness program will not be harmed one iota.

We proved last year what we can do when we set out to do a job as a group, so let's get to work and get our taxes reduced. Please contact all civic clubs, women's groups, PTA groups, and all community organizations possible; also your butcher, baker, neighbors, and relatives, and ask that letters be written to our Senators and Representatives urging them to support Senator Byrd's Economy Program and oppose "Truman's Terrible Tax". Before you make the appeal, familiarize yourself with the names and addresses to whom letters should be addressed and an outline of what should be written, as such questions are sure to be asked. The Senators are A. Willis Robertson and Harry F. Byrd, and, of course, the Representatives are different from each district.

Now is a good time to make this contact—everyone is still feeling the tax burden of March 15.

May the nation count on you?

MRS. J. ROLLINS MCGRIFF,
*Public Relations Chairman.*

## BOOK ANNOUNCEMENTS

**Understanding Natural Childbirth.** By HERBERT THOMS, M.D., in collaboration with LAURENCE G. ROTH, M.D., with a picture story by DAVID LINTON. Cloth. $3.50. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 18, New York, 1950.

Thoms' patients accept pregnancy as a happy adventure. For months in advance they train for labor much like a high school athlete training for the annual track meet. When the first labor contractions occur these women greet them with enthusiasm. Early in his book Thoms is quick to blast two widely held misconceptions about what is commonly called the "Read method" (which Thoms himself prefers to call "natural childbirth".) First, the method is not "painless". It merely claims to prepare a pregnant woman emotionally and physically so that she can experience normal labor and delivery with a minimum of discomfort. Second, drugs and gas are not withheld from the woman in labor. She may have injections of demerol and inhalations of gas as desired. However, with natural childbirth it is found that the amounts given are small and in many cases the patients desire neither drugs nor gas. The essentials of the natural childbirth method are: (1) eradication of fear by making known to the patient beforehand the anatomy and physiology of pregnancy and the mechanism of labor; (2) teaching her simple techniques of muscular relaxation and breathing to be used during labor; (3) moral support by doctors and nurses during labor and delivery. The book sets all this forth in clear simple language, illustrating it with many excellent photographs. Thoms, Professor of Obstetrics at Yale Medical School, is the leading exponent of natural childbirth in this country as Read is in England. He has designed this book primarily for the layman. Therefore, it will be of great value to physicians throughout the country whose patients are asking if they may "try the Read method".

C. D. B.

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## EDITORIAL

### John Whitridge Williams (1866-1931)

FIFTY years ago obstetrics was the Cinderella of medical sciences. As a matter of fact there was very little science in obstetrics at that time and the art was that of the midwife. When the Johns Hopkins Hospital was built, no provision whatever was made for the delivery of a woman. It was only when the medical school opened and the need was felt for a place to teach the medical students that a part of the pavilion for infectious diseases was walled off for a delivery room. Maternal mortality in the United States was a reproach. In 1933, the first year in which all the States of the Union were in the registration area, the maternal mortality was 6.2 per thousand live births. For many years the United States ranked second among the nations in high maternal mortality. In 1936, the maternal mortality rate began to improve and it has steadily declined until in 1949, it reached the astounding figure of less than one in a thousand, a rate equalled by only a few small European countries. The editor of the *Journal of the American Medical Association* (**144**:1096, 1950) listed the following causes for this achievement: (1) the increasing percentage of births in hospitals, (2) prenatal care, (3) health education, (4) availability of sulfonamides, antibiotics and blood transfusion. "But steady improvement in undergraduate and postgraduate medical training in obstetrics is the most important factor in welding together these other forces."

Whitridge Williams was a pioneer teacher in modern obstetrics and trained more future professors of obstetrics than any other person. Men like Little (McGill), Smith (Tufts), Morse and Thoms (Yale), Gamble (Albany Medical College), Goldsboro (Buffalo University), Wilson (Rochester), Sears (Syracuse), Peightal (Physicians & Surgeons), Beck (Long Island College), Bergland (Johns Hopkins University), Guttmacher (Johns Hopkins University), Douglas (Cornell), Stander (Cornell), Williams (University of Virginia), Nokes (University of Virginia), Carter (Duke), McCord (Emory), Snyder (Harvard), Douglas and Faulkner (Western Reserve), Gardner (Northwestern), Greenill (Loyola), Plass (Iowa), Dippel (Baylor), Mengert (Southwestern Medical College), Harris (Wisconsin), Ingraham (Colorado), Slemons and Lynch (California) owe their inspiration to him.

John Whitridge Williams was born in Baltimore, January 26, 1866. His father, Philip C., was a physician and a Virginian. His mother, Mary C. Whitridge, was from Rhode Island. In every generation for over 160 years there had been a doctor on one or the other side of the family. He graduated from Baltimore City College and earned his A.B. degree at Johns Hopkins. He graduated in medicine at the University of Maryland in 1888. After spending a year in pathology at Berlin and Vienna, he became voluntary assistant to Dr. Howard Kelly, who had just taken charge of obstetrics and gynecology in the Johns Hopkins Hospital. In 1893 he became associate in obstetrics. The following year he again went abroad, this time as a student in obstetrics at Leipzig, Prague and Paris. In 1896 he was elected associate professor in obstetrics in the Johns Hopkins Medical School, and in 1899, he became full professor. In 1909 he was a student in biological chemistry at the University of Heidelberg. In 1911-1923 he was dean of the Johns Hopkins Medical School. He continued as first professor of obstetrics until his death, October 21, 1931.

Dr. Williams was an outstanding teacher, and his discussion of papers before the American Gynecological Society and other meetings were models of clearness and completeness. He was one of the first to see the value of prenatal care and did much to

spread its practice throughout the country. His own researches were of great value and he stimulated many investigations by his students. He was the first to describe the funnel pelvis. His work on pelvic pathology won him membership in the American Gynecology Society at the early age of twenty-six. According to Slemons he was the youngest candidate to receive this honor. His thesis was on tuberculosis of the female generative organs. His monograph on deciduoma malignam was an outstanding work. Gigli's operation of pubiotomy is now abandoned and forgotten, but at the beginning of the Century when Cesarean section was a somewhat hazardous operation, Dr. Williams advocated it as a safe way of avoiding some Cesarean sections. He reported twenty-five successful cases in 1910. Now that the Cesarean operation has been improved, pubiotomy is no longer necessary.

Dr. Williams' interest in placentation lasted all his professional life. His last paper was on the regeneration of the placental site. It was a magnificent paper, beautifully presented. He had excellent slides of the microscopic picture of the placental site for every day of the puerperium until the endometrium had grown in from the edges and completely covered the site and displaced the bloodclot that covered the raw area at first.

Dr. Williams' worth was soon recognized, and honors, both domestic and foreign, were heaped upon him during his lifetime. In 1907 the University of Maryland awarded him an honorary Sc.D. degree. In 1911 he was made Honorary President of the Glasgow Gynecological and Obstetrical Society. He was awarded an honorary Sc.D. degree by Trinity College, Dublin, and an LL.D. degree by the University of Pittsburgh. In 1914 he was President of the American Gynecological Society and in 1916, President of the Medical Chirurgical Faculty of Maryland and also of the American Association for Study and Prevention of Infant Mortality. He was Corresponding Member of the Obstetrical Society of Munich and also of Leipzig. He was Honorary Fellow of the Obstetrical Societies of Edinburgh, Glasgow and Paris. In 1931, the year of his death, he was made an Honorary Fellow of the British College of Obstetricians and Gynecologists.

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## Blood Banks

BLOOD transfusion has had a long and checkered history. Those interested in this story are referred to Leo M. Zimmerman's excellent account in the Bulletin of the Society of Medical History of Chicago (1943). The technical difficulty of the operation presented almost insurmountable problems and the unknown biochemical reactions that were encountered, had to be overcome by brilliant research. Progress was therefore slow and spasmodic. It falls into three eras.

In 1656 Sir Christopher Wren, the architect, succeeded in injecting drugs into the veins of animals by means of a bladder fastened to a quill. Later, he used a convicted criminal for his experiment. In 1665, Richard Lower at Oxford succeeded with a transfusion of blood by anastamosing a dog's artery with another dog's vein. The following year in Paris, Denis was successful in a number of human cases. It was not long however before he met with a severe reaction and a fatality. He was tried before a criminal court and while he was acquitted the operation was banned. Thus ended the first era. One hundred and forty years later, James Blundell used blood transfusions in treating severe postpartum hemorrhage. He cured a number of cases which would have otherwise been fatal. Blundell used human blood and devised a three-way syringe for its administration. In the wave of enthusiasm that followed, sheep's blood was used, and the indications were extended to the "burnt, the uremic, the syphilitic and the mad."

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The second era ended when physiological salt solution, which carried no risks from reaction, began to be used for the treatment of shock.

The third era began with Landsteiner's discovery of blood groups (1900). By this time aseptic surgery had become well established, and transfusions were safer on two counts (1) avoidance of blood poisoning and (2) avoidance of incompatible blood. Many of us can remember the progressive steps in the development of the modern operation: 1. Anastomosis of vessels, 2. the syringe method, and 3. indirect transfusion with citrated blood. Blood vessel anastomosis ruined the donor's artery and was open to the further objection that there was no way of measuring the amount of blood given; the syringe method which followed was complicated by troublesome clotting of blood in the syringes. Frequently it was followed by a chill and a rise of temperature, a phenomenon that was attributed to "pyogens" in the glassware or the saline solution that was used to wash out the syringes. The discovery that citrated blood could be used put the operation into the minor surgery class that the interne could do. Finding suitable blood now became the chief problem. Most hospitals met this by keeping a list of professional donors and their blood grouping, so that in an emergency usable blood could be quickly located.

In 1916 Rous and Turner discovered that blood could be preserved for a week or more. The sources for blood was now greatly extended. The Russians (1932) used cadaver blood with good results. Another source that was suggested by many workers—Ascoli and Vercesi of Italy and Goodall in Canada—was freshly placentas. As substitutes for whole blood, serum and plasma have been extensively used especially in the treatment of shock. They have the advanatge of ready availability and of not having to be cross matched. On the other hand, they may carry the virus infectious hepatitis, especially when they are made from pooled blood.

The blood bank, first established at Cook County Hospital by the late Dr. Fantus (1937), was a great step forward in making blood available to medical and surgical patients on short notice. The technic of giving blood is quite simple and the laboratory procedure of matching blood is standardized. Nevertheless, serious and even fatal transfusion reactions still occur every now and then. The whole procedure needs careful supervision. For that reason local management is essential.

The need for blood on a national and international level has changed the picture that was seemingly satisfactory. In case of a large scale disaster the American Red Cross takes over the situation; supplying doctors, nurses, food, shelter and whatever else is needed. It is natural that it be interested in blood banks.

In 1940 the Blood Transfusion Association of New York and the American Red Cross worked out a joint program for supplying Great Britain with plasma. The project went into production in August 1940 and was stopped at the request of Great Britain January 17, 1941. In that time 5,500 liters of plasma saline solution was produced. Much was learned about the wholesale collection of blood, the care of donors, advertisement for donors, and the scientific and business technic of carrying on such a large undertaking.

The American Red Cross has continued its interest in collecting blood (we were tempted to say of bleeding the public) in peace time and in establishing blood banks. Naturally there have been conflicts with already established blood banks. It has been the policy of the Red Cross of going into a region only when they could get all the available blood, the so-called "all-or-none" policy. No satisfactory solution of this problem seems to have been reached as yet. Now that the Secretary of Defense has

designated the American National Red Cross as the military and civilian agency in blood bank matters, the subject has been brought to a head.

In July 1950 there was a meeting in Boston of the Committee on Blood and Blood Derivatives of the American National Red Cross together with its Medical Advisory Committee on the National Blood Program. There were present by invitation representatives of the American Medical Association, the American Hospital Association and the American Association of Blood Banks. It was agreed among other things that: "In the event of a disaster or a national emergency, the American National Red Cross, the American Medical Association, the American Hospital Association and the American Association of Blood Banks favor, in those communities not served by an American National Red Cross Regional Blood Center, the establishment of such a center and/or the use of existing blood bank facilities to procure the necessary amount of blood. The method to be used should be determined in a manner which meets the approval of the county medical society and the local blood banks and hospitals. Furthermore, the operation of the local blood bank facilities for civilian need should not be interfered with by the emergency program so far as consistent with government regulations existing at that time."

In Virginia at the present time, Alexandria, Lynchburg, Norfolk, Roanoke and Suffolk are served exclusively by the Red Cross. Franklin uses a private bank but the Red Cross is to get blood from the community for disaster and for the armed forces. Richmond has only private banks.

## SOCIETY PROCEEDINGS

### The Norfolk County Medical Society

Held its annual Spring Clinic on April 4th, with two hundred seventy-three doctors registered. Guest speakers were Dr. William Parson, University of Virginia, whose subject was Radioactive Iodine in the Treatment of Thyrotoxicosis, and Dr. Brian Blades, George Washington University Medical School, Washington, D. C., who spoke on Bronchiogenic Carcinoma of the Lung.

Local doctors participating were as follows: Dr. H. C. Meredith—The Hypersplenism Syndrome; Dr. G. F. Harrell—Diagnosis and Treatment of Foreign Bodies of the Air and Food Passages; Dr. A. J. Rawson—Lesions of the Cervix Uteri Associated with Pregnancy; Dr. John A. Cocke—Irradiation Therapy for Accessible Cancer with Particular Reference to Lesions of the Skin; Drs. Rawson and Ed Levy—Gross and Microscopic Pathology, Clinical Laboratory Procedures; Dr. W. B. Hoover—Congenital Anomalies of the Gastro-Intestinal Tract in Infants; Dr. Meyer Krischer—The Problem of Burns Resulting from Atomic Bomb Explosions; Dr. Kirwan King—The Long-Time Results of Subtotal Gastrectomy; Dr. John Franklin—The Problem of Potassium Deficiency; Dr. Arnold Strauss—Demonstrations of Gross and Microscopic Pathology; Captain Paul E. Spangler, U.S.N.—Use of ACTH in Treatment of Burns; Dr. Brock Jones—Post-Menopausal Bleeding; and Dr. William E. Byrd—Management of Obstetrical Emergencies.

Dr. George Schenck is president of the Society, and Dr. Eugene Lowenberg was chairman of the Spring Clinic.

### The Rockingham County Medical Society

Met at the Rockingham Memorial Hospital in Harrisonburg on March 20th. Following dinner, a very interesting talk was given by Dr. Porter P. Vinson, Richmond, on the "Diagnosis and Treatment of Hiatal Esophageal Hernia."

Officers elected for 1951 are: President, Dr. Noland M. Canter, vice-president, Dr. J. F. Wine, and secretary-treasurer, Dr. Cyril I. Sease, Jr.

### The Tazewell County Medical Society

Had a dinner meeting on February 21 at the River Jack Restaurant, North Tazewell, under the presidency of Dr. L. L. Thompson of Richlands.

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The program was presented by Drs. Thompson and R. Brittain, who reported on the recent ACTH and Cortizone Conference held at the University of Virginia in January. Two doctors, Dr. C. W. Docter of Amonate and Dr. W. A. Shaffer of Bluefield, West Virginia, were elected to membership.

## NEWS

### Summer Speech Improvement Camp.

Camp Woodrow Wilson, the summer speech improvement camp, will be open from June 24th to August 18th at the Woodrow Wilson Education Center, Fishersville. This is a project of the University of Virginia Speech and Hearing Center in cooperation with the Virginia Society for Crippled Children and Adults. Applications will be considered for boys from 7 through 20 and for girls 8 through 12.

Full information may be obtained from James M. Mullendore, Ph.D., Speech and Hearing Center, 58 E. Range, University of Virginia, Charlottesville, Virginia, or Benjamin S. Andrews, Box 161, Medical College of Virginia, Richmond, Virginia.

### Lynchburg Doctors Honored.

At the March meeting of the Lynchburg Academy of Medicine, the following doctors were elected to Honorary Membership: Dr. E. Barksdale, Dr. W. S. Ferguson, Dr. R. M. Taliaferro, and Dr. J. W. Walters.

### Dr. William Grossman

Has been elected president of the Petersburg Rotary Club for 1951-2.

### Dr. Isa Costen Grant

Has been named chief of the Division of Maternal and Child Health in the Richmond City Health Department. She is a graduate of the Medical College of Virginia, class of '41, and has recently been employed by Catawba Sanatorium.

### News From Department of Medicine, University of Virginia.

Dr. E. D. Vere Nicoll, Chief Assistant to the Orthopedic and Fracture Departments, St. Bartholomew's Hospital, University of London, has been appointed Instructor in Orthopedics at the University of Virginia, effective March 1.

Dr. Nicoll attended the medical course at St. Bartholomew's, where he was graduated in 1940. He served as medical officer in the Middle East and Italian campaigns and as commander of the 151st Military Hospital, R.A.M.C. During the past four years Dr. Nicoll has been associated with St. Bartholomew's Hospital.

Dr. Desmond R. H. Gourley has been appointed Assistant Professor of Pharmacology at the University of Virginia, effective September 1. During the past two years he has been associated with the Pharmacology Department in research on the phosphate metabolism of red blood cells, using radioactive phosphorus. Dr. Gourley received his Ph.D. in 1949 from the University of Toronto, where he served as a demonstrator in cellular physiology.

Dr. Henry B. Mulholland, Professor of Internal Medicine, University of Virginia, will attend the annual meeting of the World Health Organization, Geneva, Switzerland, May 7-25.

Dr. Robert D. Wright, Professor of Social and Environmental Medicine at the University of Virginia, has been awarded a fellowship by the World Health Organization to study Social Medicine and Human Ecology in Europe. The three-month study period began April 9, when Dr. Wright sailed for Stockholm, Sweden, to observe the medical care program. From Sweden Dr. Wright will go to Geneva, Switzerland, for conferences with World Health Organization officials and to Paris, where he will represent the United States at the annual meeting of the International Union Against Venereal Disease. In England Dr. Wright will study with Dr. Leslie Banks, Professor of Human Ecology, Cambridge University, and Dr. F. H. E. Crewe, Professor of Social Medicine, University of Edinburgh.

The University of Virginia has assigned dormitories accommodating 120 students to the Department of Medicine. The dormitories are located on the East Range, immediately adjacent to the Medical School and University Hospital. Most of the rooms are in buildings erected under the supervision of Mr. Thomas Jefferson and are equipped with fire-

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places. A lounge has been provided for recreation and meetings of student societies.

Alumni speakers at the annual meeting of the University of Virginia Medical Alumni Association, Charlottesville, June 8, will be Dr. John S. Lawrence, Professor of Internal Medicine, University of California at Los Angeles, and Rear Admiral H. Lamount Pugh, Surgeon General of the United States Navy. Dr. Lawrence will address the meeting's morning session on "Physiology of White Blood Cells," and Admiral Pugh will speak at the Annual Medical Alumni Dinner.

**Dr. Austin I. Dodson,**

Richmond, was guest lecturer at the 14th annual meeting of the New Orleans Graduate Medical Assembly held March 5-8.

**Virginia Pediatric Society.**

At the Spring meeting of the Virginia Pediatric Society, held in Roanoke on April 7th, Dr. E. L. Kendig, Jr., Richmond, was elected president, Dr. Paul Hogg, Newport News, vice-president, and Dr. T. J. Humphries, Roanoke, secretary-treasurer (re-elected).

A new technique of feeding premature infants, which involves the use of plastic tubing, was described by the guest speaker, Dr. Richard Day of the College of Physicians and Surgeons, New York.

**Dr. Frederick H. Yorkoff,**

Recently of Clintwood, has been appointed assistant chief of professional services at the Fort Myer Army Dispensary in Arlington. He is making his home in Washington, D. C.

**Dr. Charles A. Young,**

Roanoke, spoke at the "Silver Jubilee" annual meeting and dinner of the Wills Hospital Society in Philadelphia on March 17. His subject was " 'Wills' As I Knew It Thirty Years Ago." Dr. Young was also elected President of the Wills Hospital Society.

**The Neuropsychiatric Society of Virginia**

Will hold its spring meeting at the University of Virginia, Charlottesville, on May 2nd. The guest speaker will be a nationally prominent psychiatrist, Dr. Franklin G. Ebaugh, Denver, Colorado, who will speak on the subject of "Group Psychotherapy". There will be a paper by Dr. Wendel J. Pile of Eastern State Hospital on "The Effect of Glutamic Acid on a Group of Chronic Psychotic Patients." It is planned that a film entitled "Psyche" will be shown and discussed by Dr. David C. Wilson, Professor of Psychiatry, University of Virginia, and Dr. Benedict Nagler, Chief, Neuropsychiatric Service, Veterans Administration Hospital, Richmond.

J. B. FUNKHOUSER, *Secretary.*

**Dr. Herman A. Meyersburg,**

Recently of Norfolk, has taken a position with the Mental Hygiene Clinic of the Veterans Administration Regional office in Washington, D. C. He is also taking further training with the Washington Psychoanalytic Institute and expects to be in Washington about three years.

**Physicians' Art Show.**

The American Physicians Art Association will have an art exhibit, as usual, during the A.M.A. convention at Atlantic City, N. J., June 11 to 15, 1951, inclusive. Any physician in the United States, Canada and Hawaii desiring to participate in this show should communicate with the secretary for particulars.

J. Henry Helser & Co., Inc., Investment Managers with offices on the Pacific Coast, are the new sponsors of the American Physicians Art Association and will award 200 trophies besides a special Helser Trophy —a large decorative cup depicting Yankee Ingenuity. This cup is to be awarded for art work done in any medium. Also the large Popularity Trophy will be awarded to the owner of the art piece receiving the most popular votes during the A.M.A. convention. Over 4,000 members of the American Physicians Art Association will receive shortly, entry blanks, shipping labels and rules about this fourteenth art exhibition.

The Annual Art Banquet will be held Tuesday evening, June 12, at the Marlborough-Blenheim Hotel, Atlantic City, N. J.

F. H. Redewill, M.D., is secretary of the Association, and his address is 760 Market Street, San Francisco 2, California.

**The American Congress of Physical Medicine**

Will hold its twenty-ninth annual scientific and clinical session September 4-8, 1951 at the Shirley-Savoy Hotel, Denver, Colorado. All sessions will be open to physicians and other professional personnel. In addition to the scientific sessions, the annual instruction seminars will be held from the

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4th to the 7th. Full information may be obtained from the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

**Office Space for Rent.**

Doctor's or Dentist's office available immediately, corner of Harrison and Franklin Streets, Richmond. Call 5-4387. (*Adv.*)

**Wanted.**

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## OBITUARIES

**Dr. William Russell Jones,**

Widely known physician of Richmond, died March 20th, after a brief illness. He was eighty-one years of age and a graduate of the Department of Medicine, University of Virginia, in 1892. Later he attended the former University College of Medicine in Richmond where he was graduated in pharmacy in 1894. Dr. Jones then taught chemistry, toxicology and medical jurisprudence at the College from 1897 to 1906, and was later lecturer in clinical medicine and associate professor of the practice of medicine. He was the author of several textbooks. At the time of his death, Dr. Jones was medical advisor and chief surgeon of the Richmond, Fredericksburg and Potomac Railroad. He held the rank of major in the medical corps of the Virginia National Guards. He had been a member of the Medical Society of Virginia since 1894 and was a Life Member. Two daughters and two sons, one of them Dr. William R. Jones, Jr., of Richmond, survive him.

**Dr. Henry Owen Easley,**

Prominent physician of Alleghany County, died at his home at Iron Gate on March 25th. He was seventy-five years of age and a graduate in medicine from the University of Virginia in 1904. At the time of his death, Dr. Easley was president of the Alleghany-Bath County Medical Society. He had been a member of the Medical Society of Virginia for forty-two years.

**Dr. Louis Xavier Kolipinski,**

Richmond, died March 31st of a heart attack while driving his automobile. He was a native of Washington, D. C., and forty-four years of age. Dr. Kolipinski graduated from the Medical College of Virginia in 1936 and practiced at the Central State Hospital in Petersburg until 1941. He served as captain in the Medical Corps during World War II, following which he located in Richmond. He was a member of the American Psychiatric Society and had been a member of the Medical Society of Virginia since 1938. His wife and two daughters survive him.

**Dr. Gustave Beauregard Dudley,**

Martinsville, died April 7th. He was fifty-eight years of age and graduated from the Medical College of Virginia in 1918. Dr. Dudley had been a member of the Medical Society of Virginia since 1923. His wife and two sons survive him.